THE 3rd INTERNATIONAL CONFERENCE ON PHARMACEUTICAL AND CLINICAL RESEARCH (3rd ICPCR)

25 - 26 November 2020

"Current Updates in Pharmaceutical and Clinical Researches"

PROGRAM & ABSTRACTS BOOK

PROGRAM & ABSTRACTS BOOK

3nd International Conference on Pharmaceutical and Clinical Research (3rd ICPCR)

"Current Updates in Pharmaceutical and Clinical Researches"

November 25-26th, 2020

Medan

Host:
Faculty of Pharmacy
Universitas Sumatera Utara
Medan-Indonesia

Co-Host:
Institut Kesehatan Helvetia
Institut Kesehatan Deli Husada
Institut Kesehatan Medistra Lubuk Pakam
Universitas Imelda Medan
Universitas Tjut Nyak Dhien
Universitas Sains Cut Nyak Dhien
Universitas Muslim Nusantara Al Washliyah
Sekolah Tinggi Ilmu Kesehatan Senior Medan
Universitas Efarina

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- apt. Debi Meilani, S.Si., M.Si. (Universitas Muslim Nusantara Al Washliyah – Indonesia)

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- Assoc. Prof. Takayuki Kuraishi (Kanazawa University – Jepang)
- Abdi Wira Septama, M. Sc., Ph.D. (LIPI – Indonesia)
- Prof. Dr. apt. Azizah Nasution, M.Sc. (Universitas Sumatera Utara – Indonesia)
- Prof. Dr. apt. Hakim Bangun (Universitas Sumatera Utara – Indonesia)
- Dr. apt. Bambang Marwoto, Meng. (BPPT – Indonesia)

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  - apt. Imam Bagus Sumantri, S.Si., M.Si.
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  - Syamsirwan, S.E.
  - Arfiansyah, S.E.
  - Regiantini

Welcome Speech from Chairman of Organizing Committee

Assalamualaikum warahmatullahi wabarakatuh

The honorable:

1. Rector of Universitas Sumatera Utara, Prof. Dr. Runtung Sitepu, M.Hum.
2. Vice Rector III of Universitas Sumatera Utara, Prof. Dr. Mahyuddin K.M. Nasution, M.IT.
3. Dean of Faculty of Pharmacy of Universitas Sumatera Utara, Prof. Dr. apt. Masfria, M.S.
4. Head of Research Unit of Universitas Sumatera Utara, Prof. Dr. Erman Munir, M.Sc.
5. Keynote and invited speakers
6. Participant and committee of 3rd International Conference on Pharmaceutical and Clinical Research

All praises to Allah SWT, also shalawat and peace to Rasulullah SAW.
Welcome to the 3rd International Conference on Pharmaceutical and Clinical Research. In this opportunity, I would like to report that this is the third annual conference held by the Faculty of Pharmacy Universitas Sumatera Utara. In this year, Faculty of Pharmacy Universitas Sumatera Utara is collaborating with 9 institutions in the area of North Sumatera and Aceh as follow:

- Institut Kesehatan Helvetia - Medan
- Institut Kesehatan Medistra - Lubuk Pakam
- Sekolah Tinggi Ilmu Kesehatan Senior - Medan
- Universitas Tjut Nyak Dhien - Medan
- Universitas Imelda - Medan
- Institut Kesehatan Deli Husada - Deli Tua
- Universitas Sains Cut Nyak Dhien - Aceh
- Universitas Muslim Nusantara Al Washliyah - Medan
- Universitas Efarina - Pematang Siantar

With this great collaboration, I deliver many thanks. Hopefully next year this kind of collaboration can still be entwined and has more institutions to join.

To all keynotes and invited speakers, and also invited participants:

- Prof. Habibah Binti A. Wahab, Ph.D. from Universiti Sains Malaysia, Malaysia
- Assoc. Prof. Takayuki Kuraishi from Kanazawa University, Japan
- Prof. Reudeekorn Wiwattanapatapee from Prince of Songkla University, Thailand
- Prof. apt. Azizah Nasution, M.Sc., Ph.D. from Universitas Sumatera Utara
- Abdi Wira Septama, M.Sc., Ph.D. from Indonesian Institute of Sciences (LIPI)
- Dr. apt. Bambang Marwoto, M.Eng. from Agency for the Assessment and Application of Technology (BPPT)
- Prof. apt. Hakim Bangun, Ph.D. from Universitas Sumatera Utara
- Associate Prof. Dr. Khairana Hussein from Universiti Kebangsaan Malaysia
- Associate Prof. Dr. Jamia Azdina Jamal from Universiti Kebangsaan Malaysia

- Associate Prof. Dr. Juriyati Jalil from Universiti Kebangsaan Malaysia
- Associate Prof. Dr. Malina Jasamai from Universiti Kebangsaan Malaysia
- Dr. Norsyafinaz Yaakob from Universiti Kebangsaan Malaysia
- Dr. Norsyahida Mohd Fauzi from Universiti Kebangsaan Malaysia
- Dr. S. Parasuraman from AIMST University, Malaysia

I would like to say thank you for the willingness and sharing of knowledge and experiences to all participants.
I welcome all the participants from Indonesia and outside Indonesia. Although, we cannot directly meet, I hope that it does not decline our spirit to disseminate our research and to share knowledge. In this conference, we have 40 oral presenters, 90 poster presenters and general participants. There are 40 institutions that have been recorded to join this conference:

The article presented in this conference will be processed to be published in Tropical Journal and Natural Product Research (TJNPR) which indexed in Scopus with Q3 category as Special Issue. Therefore, for the participants who are willing to continue to the next step, you can submit the full paper from 27th November to 13rd December 2020 through ICPCR website.

For this publishing process, we had invited reviewers not only from Indonesia but also from abroad. Therefore, in this opportunity I would like to express my gratitude to the institutions that had agreed to help in the review process:

- Oregon State University, USA
- Tokushima University, Japan
- Universiti Kebangsaan Malaysia, Malaysia
- Universiti Sains Malaysia, Malaysia
- AIMST, Malaysia
- Management and Science University, Malaysia

Finally, many thanks and appreciations I deliver to all organizing committees who have cooperated and worked hardly to make this conference successful. Wish Allah SWT gives blessing to us and this event. Hopefully, the next ICPCR can collaborate with more other institutions and can be a platform to disseminate and publish the research.

Wabillahi taufiq walhidayah, wassalamualaikum warahmatullahi wabarakatuh.

With warm regards,

apt. Marianne, S.Si., M.Si.
Chairman of ICPCR 2020

Foreword from Dean of Faculty of Pharmacy, Universitas Sumatera Utara

Assalamu'alaikum Wr. Wb.,

First of all, I would like to thank honorable Rector of Universitas Sumatera Utara, Prof. Dr. Runtung Sitepu, S.H., M. Hum., honorable keynote speakers, Prof. Ruedeekorn Wiwattanapatapee (Prince of Songkla University - Thailand), Prof. Habibah A. Wahab (Universiti Sains Malaysia – Malaysia), Assoc. Prof. Takayuki Kuraishi (Kanazawa University-Japan), Prof. Dr. apt. Azizah Nasution, M.Sc. (Universitas Sumatera Utara – Indonesia), and honorable invited speakers Abdi Wira Septama. S.Farm., M.Sc., Ph.D (Indonesian Institute of Science), Prof. Dr. Bambang Marwoto, M.Eng. (BPPT) and Prof. Dr. apt. Hakim Bangun (Universitas Sumatera Utara).

I would like to congratulate the organizing committee of ICPCR, Faculty of Pharmacy Universitas Sumatera Utara for successfully organized the 3rd **International Conference on Pharmaceutical and Clinical Research 2020.** Although COVID-19 pandemic has attacked almost all countries and limited our movement, it does not decline the spirit of the organizing committee to conduct the conference. I really appreciate for the efforts of the organizing committee to make this conference as a virtual conference to keep the scientific meeting conducted. This year, Faculty of Pharmacy collaborates with 9 local pharmacy institutions to strengthen the network and as implementation of Memorandum of Understanding (MoU) that has been entwined until this moment. We do hope that this collaboration will bring benefits for all of us.

The development of knowledge is rapidly increased with all researches that have been conducted all over the world. In this conference, all scientists and researchers with their brilliant ideas can share and receive information regarding the recent researches in pharmaceutical and clinical fields. I hope every participant can take advantage from this conference.

As the Dean of Faculty of Pharmacy, Universitas Sumatera Utara, I would like to encourage faculty members to take this opportunity to form networks with excellent scientists from other institution. I am sure that this networking will urge development and help us to achieve the faculty vision as one of the leading higher education institutions in the area of pharmacy in our country.

Finally, I wish you success in the **3rd International Conference on Pharmaceutical and Clinical Research 2020** and have a great moment.

With best wishes,

Prof. Dr. apt. Masfria, M.S.
Dean
Faculty of Pharmacy
Universitas Sumatera Utara

Foreword from Rector of Universitas Sumatera Utara

Assalamu'alaikum wr wb.

First of all, I would like to thank honorable Dean Faculty of Pharmacy, Prof. Dr. apt. Masfria, M.S. and Vice Dean Faculty of Pharmacy, honorable keynote speakers, Prof. Ruedeekorn Wiwattanapatapee (Prince of Songkla University - Thailand), Prof. Habibah A. Wahab (Universiti Sains Malaysia – Malaysia), Assoc. Prof. Takayuki Kuraishi (Kanazawa University-Japan), Prof. Dr. apt. Azizah Nasution, M.Sc. (Universitas Sumatera Utara – Indonesia), and honorable invited speakers Abdi Wira Septama. S.Farm., M.Sc., Ph.D (Indonesian Institute of Science), Dr. Bambang Marwoto, M.Eng. (BPPT) and Prof. Dr. apt. Hakim Bangun (Universitas Sumatera Utara).

I would like to congratulate Faculty of Pharmacy, Univeriatas Sumatera Utara, especially the organizing committee of the **3rd International Conference on Pharmaceutical and Clinical Research 2020** who has successfully conducted a virtual conference in this pandemic situation.

The need to gain and share knowledge and information among the scientists and researchers should be accommodated to ensure the updates of the researches particularly in the field of pharmaceutical and clinical study. With the theme **"Current Updates in Pharmaceutical and Clinical Researches"**, I hope this conference can cover most of the recent researches in pharmaceutical and clinical field.

I am delighted to welcome all of Indonesian and International participants; academic staffs; practitioners and scientists who have joined this 3rd **International Conference on Pharmaceutical and Clinical Research 2020.** I hope this seminar will create new academic networks among the participants in order to share inspirable knowledge and growing a better concern in pharmacy field. I also would like to emphasize that after attending this conference, all of you, whether you are scientists, researchers, practitioners or general participants, can take benefits and apply them in your own field of knowledge.

As the Rector of Universitas Sumatera Utara, I would like to express my deepest gratitude to those who participate in this conference and those who contribute to the success of this event. I am indebted to the dean and academic staffs of Faculty of Pharmacy, Universitas Sumatera Utara, also to the organizing committee for their active supports and efforts to make this conference successful.

Finally, I wish you all have a great moment in this conference.

Thank you very much.
Assalammualaikum.wr.wb

Sincerely,

Prof. Dr. Runtung, S.H., M. Hum.
Rector of Universitas Sumatera Utara

SPECIAL THANKS TO

PENERIMAAN

CALON PESRTA

Program Magister Farmasi terbuka luas bagi lulusan S1 dari disiplin Ilmu Farmasi, Kedokteran, Kimia, Biologi dan disiplin ilmu lain yang terkait.

TATA CARA PENDAFTARAN

1. Melakukan pendaftaran secara *online* di http://sps.usu.ac.id/pendaftaran
2. Calon pendaftar BPPS diwajibkan mendaftar secara *online* ke http://beasiswa.dikti.go.id/bppdn
3. Calon pendaftar Beasiswa Unggulan diwajibkan mendaftar secara *online* ke http://beasiswa.dikti.go.id/bu
4. Calon pendaftar diperkenankan untuk meminta brosur sesuai dengan program studi yang akan diambil.
5. Calon pendaftar untuk beasiswa terlebih dahulu menanyakan ke Bagian Informasi dan Pendaftaran, apakah program studi yang dituju dibuka untuk beasiswa.

BIAYA PENDIDIKAN

Biaya Ujian Seleksi Masuk	: Rp 1.000.000,-
Biaya Pendidikan/Semester	: Rp 10.000.000,-
Dana Kelengkapan Akademik	: Rp 7.000.000,-
Biaya Ujian Tesis	: Rp 4.000.000,-
Biaya Registrasi /semester	: Rp 50.000,-

FASILITAS

Mahasiswa program Magister Ilmu Farmasi diberi kemudahan untuk menggunakan internet secara gratis pada jam kerja. Perkuliahan di kelas disampaikan dengan bantuan komputer yang dilengkapi dengan LCD projector.
Laboratorium Instrumentasi yang cukup memadai untuk keperluan analisis kimia, biologi, bioteknologi, farmakologi dan teknologi farmasi, serta di dukung fasilitas Rumah Sakit USU untuk penelitian yang terkait dengan farmasi klinis.

INFORMASI

Informasi lebih lanjut :
Program Studi Magister dan Doktor Ilmu Farmasi
Fakultas Farmasi USU di : Jln. Tri Dharma No. 5 Pintu 4
Kampus USU Medan 20155/Gedung Lama Sekolah Pascasarjana Fakultas Farmasi USU

Contact Person:
Ghita Amllia, A. Md.
087766108861/085213419401

Ade SusantI : 082163900774

PROGRAM STUDI MAGISTER FARMASI
FAKULTAS FARMASI USU

PROGRAM STUDI DOKTOR ILMU FARMASI
FAKULTAS FARMASI
UNIVERSITAS SUMATERA UTARA

INFORMASI

Informasi lebih lanjut :
Program Studi Magister dan Doktor Ilmu Farmasi Fakultas Farmasi USU di : Jln. Tri Dharma No. 5 Pintu 4 Kampus USU Medan 20155/ Gedung Lama Sekolah Pascasarjana Fakultas Farmasi USU

Contact Person:
Ghita Amllia, A. Md. : 087766108861/085213419401
Ade Susanti : 082163900774

CALON PESERTA

Program Doktor (S-3) Ilmu Farmasi Fakultas Farmasi USU terbuka luas bagi lulusan Magister (S2) dari disiplin Ilmu Farmasi, dan disiplin ilmu lain

JADWAL PENDAFTARAN

Untuk informasi pendaftaran mahasiswa baru dapat di akses melalui website Sekolah Pascasarjana USU di: www.sps.usu.ac.id

BIAYA PENDIDIKAN

Biaya Ujian Seleksi Masuk	: Rp 1.500.000,-
Biaya Pendidikan/Semester	: Rp 12.500.000,-
Dana Kelengkapan Akademik	: Rp 7.000.000,-
Biaya Ujian Disertasi (Tertutup)	: Rp 5.000.000,-

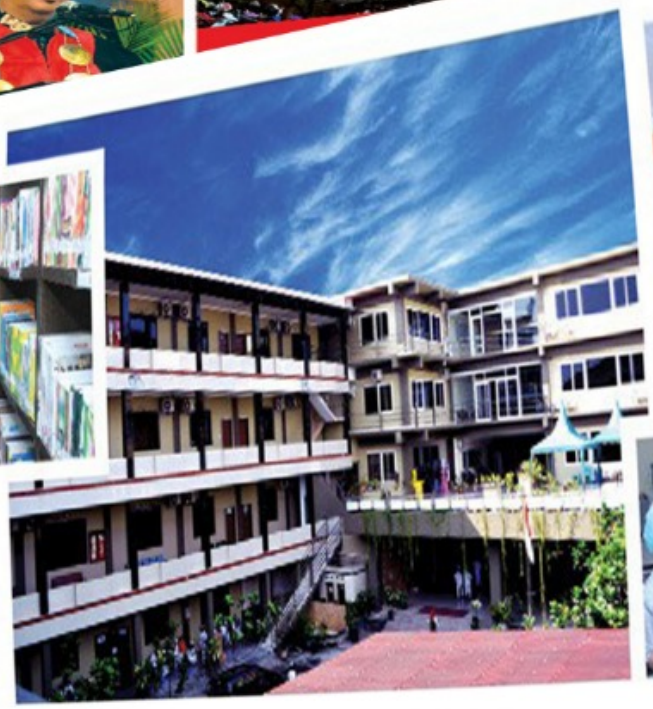
TATACARA PENDAFTARAN

- Calon pendaftar melakukan pendaftaran secara online di laman http://sps.usu.ac.id/pendaftaran
- Calon pendaftar BPPS diwajibkan mendaftar secara online ke http://beasiswa.dikti.go.id/bppdn
- Calon pendaftar Beasiswa Unggulan diwajibkan mendaftar secara online ke http://beasiswa.dikti.go.id/bu
- Calon pendaftar diperkenankan untuk meminta brosur sesuai dengan program studi yang akan diambil.
- Calon pendaftar untuk beasiswa terlebih dahulu menanyakan ke Bagian Informasi dan Pendaftaran, apakah program studi yang di-tuju dibuka untuk beasiswa

PROFILE OF CO-HOST

INSTITUT KESEHATAN HELVETIA

TERAKREDITASI OLEH BAN-PT PERINGKAT B || No. 108/SK/BAN-PT/Akred/PT/V/2018



D4 KEBIDANAN

Menghasilkan Sarjana Terapan Kebidanan yang memiliki kompetensi bidang ahli yang mampu memberikan solusi permasalahan kebidanan yang lebih komprehensif.

D3 KEBIDANAN

Menghasilkan lulusan Ahli Madya Kebidanan yang memiliki kompetensi bidan terampil dan unggul ditingkat Nasional & Global.

PROFESI BIDAN

Pendidikan lanjutan dari lulusan D4/S1 Kebidanan sebagai syarat untuk dapat memperoleh Surat Tanda Registrasi Bidan (STR).

D3 KEPERAWATAN

Menghasilkan lulusan Ahli Madya Keperawatan yang memiliki kompetensi dan keunggulan pada keperawatan medikal bedah yang dibutuhkan rumah sakit di seluruh Indonesia.

S1 KEPERAWATAN & PROFESI NERS

Menghasilkan lulusan profesi perawat yang mampu memberikan asuhan keperawatan dengan pengetahuan, sikap, dan skill yang bermutu.

D3 FARMASI

Menghasilkan Ahli Madya Farmasi yang terampil mengelola kefarmasian di rumah sakit, apotek, dan industri.

S1 FARMASI

Menghasilkan Sarjana Farmasi yang memiliki pengetahuan dan keterampilan klinis tentang obat-obatan serta manajemen farmasi yang sangat dibutuhkan industri farmasi, rumah sakit & apotek.

FAKULTAS FARMASI DAN KESEHATAN

Merupakan salah satu fakultas yang ada di Institut Kesehatan Helvetia yang memiliki 7 (tujuh) Program Studi yaitu, S1-Farmasi, D4-Kebidanan, Profesi Bidan, S1-Keperawatan dan Profesi Ners, D3-Kebidanan, D3-Keperawatan, dan D3-Farmasi. Fakultas Farmasi dan Kesehatan memiliki komitmen yang tinggi untuk mewujudkan Sumber Daya Manusia Kesehatan yang berkompeten. Dalam mewujudkannya Fakultas Farmasi dan Kesehatan memiliki Visi, yaitu:

"Menjadi Fakultas Farmasi dan Kesehatan terkemuka yang unggul dalam mutu akademik dan profesionalisme, berwawasan global dengan berlandaskan nilai-nilai budaya Bangsa Indonesia tahun 2025"

"mari kita buat masa depan kita sekarang,dan mari kita wujudkan mimpi kita di hari esok"

CP: 0812-6082-4610
(Nurmala Sari,SST.,M.Kes)

FACULTY OF PHARMACY INSTITUT KESEHATAN DELI HUSADA

WWW.DELI HUSADA.AC.ID

TINGKAT KELULUSAN PROFESI APOTEKER 81%

LULUS TEPAT WAKTU DENGAN PROSPEK KERJA YANG LUAS

Program study farmasi program sarjana
Akreditas LAM-PTKes"B"
program study farmasi ekstensi
Akreditas LAM-PTKes
program study pendidikan profesi apoteker
Akreditas LAM-PTKes

OUR MISSION

menyelenggarakan proses belajar yang kondusif dengan menyediakan fasilitas yang lengkap

OUR VISSION

menghasilkan lulusan sarjana farmasi dan profesi apoteker yang kompeten secara akademik dan profesional

SINCE

Berdiri sejak tahun 1984.dan mendirikan program studi farmasi S-1 sejak 2013

PKPA

Apotek, Puskesmas, Rumah Sakit, PBF, dan Industri

JL.Delitua No.77. Deli serdang sumatera utara,indonesia

www.pendaftaran.delihusada.ac.id

FAKULTAS FARMASI

INSTITUT KESEHATAN MEDISTRA

LUBUK PAKAM

VISI

- MENGHASILKAN PROGRAM STUDI YANG UNGGUL DAN EXCELLENT SERVICE DI BIDANG ANALISIS KESEHATAN DAN KEFARMASIAN TINGKAT NASIONAL

MISI

- Menyelenggarakan proses belajar mengajar yang kondusif dengan berbagai fasilitas belajar, metode, dan system pembelajaran kelas dan lapangan sehingga menghasilkan lulusan yang kompeten dan excellent service.
- Mengoptimalkan dan mengimplementasikan program riset yang difokuskan pada diagnostik pemeriksaan laboratorium dan dalm bidang farmasi klinis dan komunitas di wilayah Sumatera Utara dengan menggunakan pendekatan riset kolaboratif.
- Mengimplementasikan program pengabdian kepada masyarakat berbasis riset untuk menyelesaikan berbagai permasalahan kesehatan di Sumatera Utara dengan menekankan upaya pendekatan pharmaceutical care dan diagnostik pemeriksaan laboratorium.
- Menjalin kerjasama yang baik dengan stakeholders mulai dari pemerintah, dunia usaha dan masyarakat sebagai pengguna lulusan.

- Program Studi Farmasi Program Sarjana Akreditasi LAM-PTKes "B"
- Program Studi Farmasi Profesi Apoteker Akreditasi LAM-PTKes
- Program Studi Teknologi Laboratorium Medik Akreditasi LAM-PTKes

LULUS TEPAT WAKTU DENGAN PROSPEK KERJA YANG LUAS

Telp. (061)-7952234-7952262
fax. (061)-7952234
pendaftaran : spmb.medistra.ac.id
institutkesehatan@medistra.ac.id
CP: Rosita Ginting, S.H.,M.Kes
(0821 6575 5525)

YAYASAN IMELDA MEDAN
UNIVERSITAS IMELDA MEDAN

Jl. Bilal No. 52 Kel. Pulo Brayan Darat I Kec. Medan Timur Kode Pos : 20239

Fasilitas Dan Sarana

* Ruang Kuliah yang Nyaman
* Ruang Laboratorium
* Lahan Praktek
* Perpustakaan Full AC
* Ruang Diskusi
* Ruang Demonstrasi
* Ruang Audio Visual
* Ruang PEMA
* Ruang Pengajian dan Kebaktian
* Latihan Paskibraka
* Paduan Suara
* Laboratorium Komputer
* Laboratorium Bahasa

Pogram Studi Sarjana (S1)

- **KEPERAWATAN** B
  LAM-PTKES, NO.SK 0788/LAM-PTKES/AKR/SAR/XII/2017
- **FARMASI**
  TERAKREDITASI
- **KEBIDANAN**
  TERAKREDITASI
- **PARIWISATA**
  TERAKREDITASI
- **EKONOMI SYARIAH**
  TERAKREDITASI

Pogram Profesi

- **PRODI PROFESI NERS**
  TERAKREDITASI
- **PRODI PROFESI BIDAN**
  TERAKREDITASI

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  TERAKREDITASI

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  LAM-PTKES DENGAN NO.SK 0197/LAM-PTKES/AKR/DIP/XII/2015
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- **PEREKAM MEDIS DAN INFORMASI KESEHATAN** B
  LAM-PTKES DENGAN NO.SK 0283/LAM-PTKES/AKR/DIP/XII/2015
- **KOMPUTERISASI AKUNTANSI** B
  BAN-PT DENGAN NO.SK 481/SK/BAN-PT/AKRED/DPL-III/XII/2014
- **MANAJEMEN INFORMATIKA**
  TERAKREDITASI

VISI

Menjadi perguruan tinggi yang unggul dan mampu bersaing di tingkat nasional pada tahun 2024

MISI

- Menyelenggarakan pendidikan dan pembelajaran yang efektif melalui sistem pembelajaran yang sesuai dengan Standar Nasional Perguruan Tinggi (SNPT) dan KKNI, terintegrasi dengan hasil-hasil penelitian dan pengabdian masyarakat terkini untuk menghasilkan lulusan sesuai profil yang diharapkan.
- Melaksanakan penelitian ilmiah dan dipublikasi secara nasional dan internasional.
- Melaksanakan pengabdian masyarakat yang terstruktur dan mengacu pada hasil penelitian.
- Melaksanakan kerjasama produktif dengan berbagai instansi baik dibidang pendidikan, pelayanan, dunia usaha, dunia

UNIVERSITAS TJUT NYAK DHIEN

BAN-PT

VISI

Universitas Tjut Nyak Dhien menjadi lembaga yang unggul ,terkemuka dan bermutu dalam ilmu pengetahuandan teknologi untuk mewujudkan masyarakat madani

MISI

- Melaksanakan manajemen yang bermutu tinggi dalam bidang pendidikan, pengajaran, penelitian dan pengabdian kepada masyarakat
- Melakukan kajian dan pengembangan ilmu dengan metodologi dan sarana yang modern
- Melakukan pengembangan sumber daya insani yang terintegrasi antara kecerdasan intelektual emosional dan spiritual

FASILITAS

Laboratorium Bahasa
Laboratorium Teknik
Laboratorium Farmasi
Laboratorium Komputer
Laboratorium Klinis Hukum
Laboratorium dan Kebun percobaan pertanian
Galery Investasi
Perkuliahan menggunakan LCD
Parkir yang Luas
Masjid
Lapangan Olah Raga
Bus Kampus
Perpistakaan
Wifi

PROGRAM STUDI SARJANA

- (Akreditasi "B") **Farmasi**
- (Akreditasi "B") **Agroteknologi**
- (Akreditasi "B") **Perkebunan**
- (Akreditasi "B") **Peternakan**
- (Terakreditasi) **Teknik Mesin**
- (Terakreditasi) **Teknik Elektro**
- (Izin KEMENRISTEK - DIKTI) **Sistem Informasi**
- (Akreditasi "B") **Manajemen**
- (Akreditasi "B") **Ekonomi Pembangunan**
- (Akreditasi "B") **Ilmu Hukum**
- (Akreditasi "B") **Komunikasi Penyiaran Islam**
- (Izin KEMENRISTEK - DIKTI) **Psikologi**

PROGRAM PROFESI

- (Terakreditasi) **Apoteker**

Kampus I : Jln. Jambi No. 59 Medan
Kampus II : Jln. Gatot Subroto/Jln. Rasmi No. 28 Medan
061-8451508 0821 36 7777 65
www.utnd.ac.id informasi utnd Universitas Tjut Nyak Dhien Medan

UNIVERSITAS SAINS CUT NYAK DHIEN

JL. PRUMNAS NO.45, PB. SEULEMAK, LANGSA BARO, KOTA LANGSA, ACEH, INDONESIA

Fakultas Ilmu Kesehatan

PROG PROFESI NERS
S1 KEPERAWATAN
S1 FARMASI
D3 KEBIDANAN
D3 KEPERAWATAN

Fakultas Ilmu Pendidikan

S1 BIMBINGAN & KONSELING
S1 PENDIDIKAN GURU SD
S1 PENDIDIKAN JASMANI

Fakultas Teknik

S1 TEKNIK KOMPUTER
S1 TEKNIK SIPIL

Fakultas Hukum

S1 ILMU HUKUM

Fakultas Pertanian

S1 AGROTEKNOLOGI

Ns. Edy Mulyadi, M.Kep, RN, WOC(ET)N
Rektor

VISI

Menjadi Universitas Unggul Dalam Penyelenggaraan Pendidikan Berkarakter Kewirausahaan dan Islami Tahun 2025

official Website
http://uscnd.ac.id

E-Mail
info@uscnd.ac.id

UNIVERSITAS MUSLIM NUSANTARA (UMN) AL WASHLIYAH

Unggul Berkualitas Islami

PERINGKAT 2
PERGURUAN TINGGI SWASTA
TERBAIK
DI SUMATERA UTARA

B
AKREDITASI

FAKULTAS & PROGRAM STUDI S1 & S2

PASCASARJANA (S2)
1. Mag. Pend. Bahasa Indonesia (Akrd. B)
2. Mag. Pend. Matematika (Terakreditasi)
3. Mag. Pend. Bahasa Inggris (Terakreditasi)
4. Mag. Hukum (Terakreditasi)

FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN & PROFESI
1. Bimbingan Konseling (Akrd. B)
2. Pend. Matematika (Akrd. B)
3. Pend. Fisika (Akrd. B)
4. Pend. Bahasa Indonesia (Akrd. B)
5. Pend. Bahasa Inggris (Akrd. B)
6. PPkn (Akrd. B)
7. Pend. Ekonomi (Akrd. B)
8. PG-PAUD (Akrd. B)
9. PG-SD (Akrd. B)
10. Pendidikan Profesi Guru (PPG)

FAKULTAS PERTANIAN
1. Agribisnis (Akrd. B)

FAKULTAS HUKUM
1. Ilmu Hukum (Akrd. B)

FAKULTAS SASTRA
1. Sastra Inggris (Akrd. B)

FAKULTAS EKONOMI
1. Akutansi (Akrd. B)
2. Manajemen (Akrd. B)

FAKULTAS FARMASI
1. Farmasi (Akrd. B)

Seiring dengan perjalanan waktu ternyata tidak hanya universitas negeri yang menjadi pilihan utama karena beberapa universitas swasta juga menjadi destinasi pendidikan yang sangat menarik bagi para calon mahasiswa. Salah satu universitas tersebut adalah Universitas Muslim Nusantara Al Washliyah.

Sebagai Universitas dibawah naungan perkumpulan Al Jamia'tul Washliyah yang berdiri pada tanggal 08 Agustus 1996, UMN Al Washliyah menjadikan nilai ke-Al Washliyahan sebagai pilar keunggulan universitas. Pada tahun 2017 UMN Al Washliyah telah meraih akreditasi Institusi Perguruan Tinggi dengan peringkat "B", ini menjadi bukti bahwa UMN Al Washliyah telah dan akan terus meningkatkan kualitasnya, hal ini diiringi dengan diraihnya peringkat ke-2 Perguruan Tinggi Swasta terbaik di Sumatera Utara yang di publish oleh Kemenristekdikti pada tahun 2018. Bahkan pada tahun 2019, kinerja penelitian UMN Al Washliyah berada pada klaster "Utama" dan kinerja Pengabdian Kepada Masyarakat meraih predikat "sangat bagus", ini menunjukkan bahwa UMN Al Washliyah mampu mefasilitasi calon mahasiswa dalam mewujudkan cita-citanya.

Sebagai universitas yang bervisi Menjadi Universitas unggul dalam penyediaan sumber daya manusia berkualitas dan berciri Islami pada tahun 2035. UMN Al Washliyah telah dan akan terus mengembangkan budaya akademik islami dalam aktivitas pembelajarannya guna membangun karakter mahasiswa agar menjadi pribadi yang berakhlaqul karimah dan memiliki kompetensi sesuai bidangnya masing-masing. Keyakinan yang tinggi bahwa cita-cita ini akan terwujud dan menjadi fondasi bagi kemajuan UMN Al Washliyah zaman berzaman.

Kampus H. M. Arsyad Thalib Lubis	Jl. Garu II, No. 93
Kampus H. M. Yunus Karim	Jl. Garu II, No. 02
Kampus H. Abdul Rahman Syihab	Jl. Garu II, No. 52
Kampus H. Aziddin	Jl. Medan - Lubuk Pakam
Kampus Syeikh H. Muhammad Yunus	Jl. Stadion/Gedung Arca

Medan, Sumatera Utara

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SEKOLAH TINGGI ILMU KESEHATAN (STIKes) SENIOR

MEDAN - SUMATERA UTARA

Jl. Jamin Ginting KM. 8,5 No. 13 Padang Bulan - Medan
Website : stikes-senior.ac.id Email : stikesseniormedan@yahoo.co.id

IZIN KEMENRISTEKDIKTI RI NO : 569/E/O/2014
IZIN KEMENRISTEKDIKTI RI NO : 806/KPT/I/2018

AKREDITASI "B" LAM-PTKes

Menerima MAHASISWA BARU T.A. 2020/2021

PROGRAM STUDI

1. S-1 Kebidanan Program Sarjana
2. Pendidikan Profesi Bidan Program Profesi
3. S-1 Farmasi
4. D-III Kebidanan
5. D-III Analis Kesehatan
6. D-III Radiodiagnostik & Radioterapi

SYARAT PENDAFTARAN

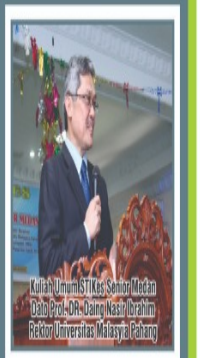
- Lulusan SMU/MA, SMK, Sederajat
- 3 Lembar Fotocopy STTB dilegalisir atau Surat Keterangan Lulus dari Sekolah
- 3 Lembar Fotocopy daftar nilai yang dilegalisir
- Pas Photo Hitam Putih Ukuran 3x4 dan 4x6 masing-masing 5 lembar
- Sehat Jasmani dan Rohani
- Fotocopy Ijazah D-III Kebidanan/Sederajat yang dilegalisir sebanyak 3 rangkap
- Fotocopy Ijazah D-IV Kebidanan/Sederajat yang dilegalisir sebanyak 3 rangkap
- Fotocopy Transkrip Nilai Sebanyak 3 lembar

INFORMASI PENDAFTARAN HP/WA

1.	L. Manullang, SKM.MM	0811652007
2.	Fransiska Simbolon,SST.,M.Kes	081396655520
3.	Kristen Siahan, SE	081265700841
4.	Amri Jamorris S, S.Pd	081375409112
5.	Sahat Monang Sinaga, MM	081264928575
6.	Suharni Pintamas Sinaga, SST, M.KM	081361543406
7.	Drs. Hasudungan Siahaan, MM	081370464111
8.	Drs. Ranto Pardede, MM	085261642202
9.	Liber Napitupulu, SKM, M.Kes	082165151619
10.	Elvis Sastra Aritonang, S.Kom	085297021943

PERESMIAN KAMPUS BARU SEKOLAH TINGGI ILMU KESEHATAN (STIKES) SENIOR MEDAN

Kata Sambutan Bapak Kepala L.L Dikti SUMUT Prof. Dr. Dian Armanto, M.Pd., MA., M.Sc., Ph.D



Kuliah Umum STIKes Senior Medan Oleh Prof. DR. Daing Nasir Ibrahim Rektor Universitas Malaysia Pahang

Acara Wisuda Lulusan Sekolah Tinggi Ilmu Kesehatan (STIKes) Senior Medan

Foto Bersama Penandatanganan Kerjasama (MoU) Sekolah Tinggi Ilmu Kesehatan (STIKes) SENIOR Medan dengan Universiti Malaysia Pahang (UMP)

RINCIAN	UANG KULIAH	UANG PRAKTEK	UANG UJIAN
* S-1 Kebidanan Jalur SLTA	Rp. 4.200.000 / Semester	Rp. 2.000.000 / Semester	Rp. 800.000 / Semester
* Pendidikan Profesi Bidan Jalur D-IV Kebidanan	Rp. 5.000.000 / Semester	Rp. 2.000.000 / Semester	Rp. 800.000 / Semester
* S-1 Farmasi	Rp. 4.200.000 / Semester	Rp. 2.000.000 / Semester	Rp. 800.000 / Semester
* D-III Kebidanan	Rp. 4.200.000 / Semester	Rp. 2.000.000 / Semester	Rp. 800.000 / Semester
* D-III Analis Kesehatan	Rp. 4.200.000 / Semester	Rp. 2.000.000 / Semester	Rp. 800.000 / Semester
* D-III Radiodiagnostik & Radioterapi	Rp. 4.200.000 / Semester	Rp. 2.000.000 / Semester	Rp. 800.000 / Semester

✓ Uang Asrama dilakukan pembayaran per Bulan sebesar Rp. 700.000,-
(Bagi yang tinggal di Asrama)

L. Br. Manullang, SKM, MM

Ketua Pembina Sekolah Tinggi Ilmu Kesehatan (STIKes) Senior Medan - Sumatera Utara

Penandatanganan Kerjasama (MoU) Sekolah Tinggi Ilmu Kesehatan (STIKes) SENIOR Medan oleh Ibu L. Br. Manullang, SKM, MM dengan Universiti Malaysia Pahang (UMP) oleh Dato Prof. DR. Daing Nasir Ibrahim

Penyerahan Izin S-1 Kebidanan Dan Pendidikan Profesi Oleh Bapak Kepala LL Dikti SUMUT Prof. Dr. Dian Armanto, M.Pd., MA., M.Sc., Ph.D

Workshop Audit Mutu Internal Oleh Sekretaris LL Dikti SUMUT Dr. Mahri Yuni, M.Hum

KAMPUS STIKES SENIOR MEDAN

Jln. Jamin Ginting Km. 8,5 No. 13 Padang Bulan - Medan

VISI INSTITUSI

Menjadi Institusi Pendidikan Kesehatan Yang Berkarakter Dan Unggul Dalam Mutu Pendidikan Secara Global Tahun 2023.

MISI INSTITUSI

- ◇ Menghasilkan Lulusan Yang Unggul, Berkarakter, Inovatif dan Kreatif di Bidang Kesehatan.
- ◇ Menghasilkan Penelitian dan Pengabdian Kepada Masyarakat Yang Inovatif dan Kreatif
- ◇ Mewujudkan Budaya Mutu Dilingkungan STIKes Senior Medan
- ◇ Menghasilkan Berbagai Kerjasama Ditingkat Lokal, Nasional dan Internasional Untuk Mendukung Mutu Pendidikan.

Motto : Cipitakan Mata Air, Bukan Air Mata

PERINCIAN BIAYA ADMINISTRASI PENERIMAAN MAHASISWA DAN BIAYA PERKULIAHAN T.A. 2020/2021

NO.	URAIAN	PROGRAM STUDI					
		S-1 Kebidanan Jalur SLTA Sederajat	Pendidikan Profesi Bidan Jalur D-IV Kebidanan	S-1 FARMASI	D-III KEBIDANAN	D-III ANALIS KESEHATAN	D-III RADIODIAGNOSTIK & RADIOTERAPI
1	PENDAFTARAN	200.000	200.000	200.000	200.000	200.000	200.000
2	PPS	500.000	-	500.000	500.000	500.000	500.000
3	PEMBANGUNAN	2.000.000	2.000.000	2.000.000	3.000.000	1.000.000	1.000.000
4	UANG PERLENGKAPAN	2.000.000	-		2.000.000	-	-
5	UANG PERPUSTAKAAN	250.000	250.000	250.000	250.000	250.000	250.000
6	LES BAHASA INGGRIS	500.000	500.000	-	500.000	-	-
7	CEK KESEHATAN	250.000	-	250.000	250.000	250.000	250.000
8	SUMBANGAN PENGEMBANGAN AKADEMIK	1.000.000	7.700.000	-	-	-	-
9	UANG JAKET ALMAMATER, BAJU TRAINING, TOPI.	350.000	350.000	-	-	-	-
	Total	7.050.000	11.000.000	3.200.000	6.700.000	2.200.000	2.200.000

BIAYA ADMINISTRASI DAN PENDIDIKAN PROGRAM STUDI S-1 KEBIDANAN DARI JALUR D-III KEBIDANAN

No.	URAIAN	Biaya
1	Uang Administrasi	Rp. 5.800.000
2	Biaya Pendidikan S-1 Kebidanan (2 Semester)	Rp. 14.000.000
3	Uang Ujian Akhir Program + Wisuda	Rp. 6.500.000
	TOTAL	Rp. 26.300.000

No.	BIAYA ADMINISTRASI DAN PENDIDIKAN PROGRAM STUDI PENDIDIKAN PROFESI BIDAN	Biaya
1	Uang Administrasi	Rp. 8.000.000
2	Biaya Pendidikan Profesi Bidan (2 Semester)	Rp. 18.000.000
3	Uang Ujian Akhir Program + Wisuda	Rp. 6.500.000
	TOTAL	Rp. 32.500.000

CATATAN: Bagi alumni Akademi Kebidanan SENIOR Medan / Prodi D-III Kebidanan STIKes SENIOR Medan mendapat Potongan Administrasi sebesar 50%

KEUNGGULAN

1. Ruang Kuliah dilengkapi dengan LCD Proyektor.
2. Akses Internet nirkabel (Wi-fi) gratis
3. Lingkungan yang luas dan asri
4. Mushola di dalam kampus
5. Perpustakaan Modern
6. Laboratorium lengkap untuk semua jurusan
7. Aula
8. Asrama di Lingkungan Kampus
9. Bus Transport Mahasiswa
10. Mahasiswa Program Studi D-III Kebidanan diwajibkan tinggal di Asrama
11. Tersedia Asrama Putri bagi mahasiswa jurusan : S1 Farmasi, D-III Farmasi, D-III Analis Kesehatan, D-III Radiodiagnostik & Radioterapi, yang berminat tinggal di asrama
12. Kami memfasilitasi pemondokan (rumah sewa) bagi mahasiswa putra diluar asrama

Beasiswa yang diberikan kepada mahasiswa yaitu :

1. Beasiswa Peningkatan Prestasi Akademik (PPA) bagi mahasiswa yang berprestasi.
2. Beasiswa Bantuan Belajar Mahasiswa (BBM) bagi mahasiswa yang kurang mampu.
3. Beasiswa BIDIKMISI bagi mahasiswa berprestasi dan kurang mampu.
4. Beasiswa dari Yayasan Senior Power Medan.

PROYEKSI SERAPAN LULUSAN

1. Bekerja di Rumah Sakit pemerintah maupun swasta
2. Dinas Kesehatan
3. Puskesmas
4. Rumah Bersalin
5. Praktek Mandiri
6. Klinik Industri

Laboratorium D-III Kebidanan STIKes Senior Medan

Laboratorium D-III Radiodiagnostik & Radioterapi

Mahasiswi STIKes SENIOR Medan sedang melakukan Praktek di Laboratorium praktek STIKES SENIOR Medan

Laboratorium D-III Analis Kesehatan STIKes Senior Medan

Laboratorium S-1 Farmasi STIKes Senior Medan

CAPPING DAY STIKES SENIOR MEDAN

Pengambilan Sumpah / Janji Wisudawati STIKES Senior Medan menurut Agama Islam

VISI DAN MISI UNIVERSITAS EFARINA

VISI

"Menjadi Universitas Terkemuka, dan berdaya Saing Serta Mampu Berperan Aktif dalam Pembangunan Bangsa pada Tingkat Nasional Tahun 2026."

MISI

1. Melaksanakan Proses Pendidikan dan Pengajaran Melalui Penggunaan Berbagai Teknologi Pendidikan Sesuai dengan Standard Mutu Pendidikan Nasional dan Internasional.
2. Mengadakan Kegiatan Penelitian Yang Menunjang Pengembangan Ilmu Kesehatan, Teknik, Ekonomi, Keguruan dan Ilmu Pendidikan.
3. Mengadakan Kegiatan Pengabdian Masyarakat Berupa Pelayanan Pendidikan Secara Edukatif, Komsisten dan Terprogram dalam Bidang Ilmu Kesehatan, Pendidikan, Teknik dan Manajemen,dengan Pendekatan Pemberdayaan Masyarakat dan Terapan Teknologi Ilmu Kesehatan, Pendidikan, Teknik dan Manajemen Tepat Guna.
4. Menjalin Kerjasama dengan Lembaga Pendidikan, Penelitian dan Pengabdian Masyarakat dalam Bidang Kesehatan, Teknik, Ekonomi, Keguruan dan Ilmu Pendidikan Untuk Mendukung Program Akademik.
5. Turut Serta dalam Kompetisi Tingkat Regional Maupun Nasional Menghadapi Persaingan dan Tantangan dalam Bidang Pendidikan, dan Kreativitas Mahasiswa.

YAYASAN PENDIDIKAN EFARINA

UNEFA

UNIVERSITAS EFARINA

Mari Membangun Bangsa dari UNEFA

KEPUTUSAN MENTERI PENDIDIKAN DAN KEBUDAYAAN REPUBLIK INDONESIA NOMOR 413/E/O/2012.

TERAKREDITASI BAN - PT & LAM - PTKes

AKREDITASI B BAN-PT & LAM-PTKes

*Prodi IKM dan PGSD

KAMPUS 1
JLN. SUTOMO GRIYA HAPOLTAKAN KAV 1-10. PEMATANG RAYA SIMALUNGUN

KAMPUS 2
JLN. PDT. J. WISMAR SARAGIH NO.1 PEMATANG SIANTAR SUMATERA UTARA

FASILITAS
- Beasiswa Bidik Misi & PPA
- Perpustakaan
- Auditorium
- Mushalla
- Lapangan Parkir Luas
- Fasilitas Olah Raga
- Wifi / Internet Gratis

DR.JR. SARAGIH, SH.MM
PENDIRI YAYASAN EFARINA

081371496009
contact@unefa.ac.id
universitasefarina@gmail.com
universitas_efarina
universitas Efarina

0823 7077 7677
0813 7149 6009

BIAYA KULIAH TERJANGKAU, DAPAT DI CICIL TIAP BULAN !!

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KEUNGGULAN UNEFA

- STAF PENGAJAR PROFESIONAL & LULUSAN S2 DAN S3 DARI PTN TERKEMUKA
- SISTEM INFORMASI AKADEMIK ONLINE
- RUANG KULIAH NYAMAN DILENGKAPI WIFI, LCD PROJECTOR
- SARANA DAN PRASARANA YANG LENGKAP
- LULUSAN TERBAIK LANGSUNG KERJA DI PT EFARINA ETAHAM GRUP.

FAKULTAS PILIHAN

FAKULTAS	PROGRAM STUDI	JENJANG
KEGURUAN & ILMU PENDIDIKAN	Pendidikan Matematika	S1
	Pendidikan Bahasa & Sastra Indonesia	S1
	Pendidikan Guru Sekolah Dasar (PGSD)	S1
TEKNIK	Informatika	S1
	Elektro	S1
	Lingkungan	S1
KESEHATAN	Farmasi	S1
	Ilmu Kesehatan Masyarakat	S1
	Keperawatan	S1
	Kebidanan	D3
	Analisis Kesehatan	D3
	Radiodiagnostik dan Radioterapi	D3
	Fisioterapi	D3
EKONOMI	Manajemen	S1

TEMPAT PENDAFTARAN

- **KAMPUS I**
  Jl. Sutomo Griya Hapoltakan Kav 1-10, Pematang Raya - Simalungun
- **KAMPUS II**
  Jl. PDT. J. Wismar Saragih No.1 Pematang Siantar, Sumatera Utara
- **SIMALUNGUN CITY HOTEL (SCH) PEMATANG RAYA**
  Jl. Sutomo Griya Hapoltakan Kav. 1-10, Pematang Raya Kabupaten Simalungun, Telp (0622) 331188, Hp : 0812 7811 5109
- **RS. EFARINA ETAHAM BERASTAGI**
  Jl. Let Jend. Jamin Ginting No. 1 Raya, Berastagi Kabupaten Karo
  Staff Marketing : 0812 6264 9735
- **RS. EFARINA PANGKALAN KERINCI**
  Jl. Lintas Timur No. 1 P. Kerinci Provinsi Riau,
  Pak. Hermanus : 0853 5521 4646
- **SMA DAN SMK SWASTA PLUS KESEHATAN EFARINA**
  Jl. Nawar Targer No.1 Saribudolok, Kec. Silimakuta Kab. Simalungun
  Hp : 0813 7682 4585, 0822 7255 6685 (Whats App)
- **PT.EFARINA TELEVISI**
  JL.PARAHOT NO. 26 KEL. PEMATANG SIMALUNGUN, KEC. SIANTAR KAB. SIMALUNGUN, SUMATERA UTARA 21151
  Hp : 082167967949

SYARAT PENDAFTARAN

1. Fotokopi KK, KTP, Akte Lahir (2 Lbr)
2. Fotokopi Ijazah SMA/SMK/MA, STTB/SKHU (2 lbr) dilegalisir
3. Pas foto uk. 2 x 3 & uk.3 x 4 (2 lbr)

KELAS EKSTENSI

UNEFA juga menerima Mahasiswa Transferan/Lanjutan yang berasal dari PTN/PTS yang relevan dengan program yang ada di UNEFA dengan Syarat Sebagai berikut :

1. Fotokopi KK, KTP, Akte Lahir (2 Lbr)
2. Fotokopi Ijazah SMA/SMK/MA, STTB
3. Pas foto uk. 2 x 3 & uk.3 x 4 (2 lbr)
5. Surat keterangan pindah dan transkrip nilai dilegalisir
6. Surat permohonan bermaterai Rp. 6000,-

TENTATIVE SCHEDULE

Wednesday, November 25th 2020

No	Time	Event	Venue	Person in charge
1.	08.00 - 08.30	Registration	Google form	Committee
2.	08.30 - 09.00	Opening Ceremony		MC: apt. Henny Sri Wahyuni, S. Farm., M. Si. Do'a: apt. Hafid Syahputra, S. Farm., M. Si. Host: apt. Mahatir Muhammad, S. Farm., M. Si.
		- Do'a - Sing Indonesia Raya - Opening Speech: 1. Committee: apt. Marianne, S. Si., M. Si. 2. Dean of the faculty of Pharmacy USU: Prof. Dr. apt. Masfria, M. Si. 3. Rector of USU: Prof. Dr. Runtung Sitepu, M. Hum.		
3.	09.00 - 11.00	Keynote Speaker	Zoom	Mod: apt. Lia Laila, M. Sc. Host: apt. Mahatir Muhammad, S. Farm., M. Si.
	09.00 - 10.00	**Prof. Ruedeekorn Wiwattanapatapee, Ph. D** **"Novel Drug Delivery Systems for Improving the Bioavailability and Efficacy of Herbal Medicines"**		
	10.00 - 11.00	**Prof. Habibah A. Wahab, Ph. D** **"Utilizing Computer Aided Drug Design for Drug Discovery from Natural Product"**		
4.	11.00 - 12.00	Q & A	Zoom	
5.	12.00 - 13.00	BREAK		
6.	13.00 - 14.00	Invited Speaker (Paralel Session)	Zoom In Room A,B,C	
	13.00 - 14.00	**Abdi Wira Septama, M. Sc., Ph. D.** **"The Potency of Prenylated Flavonoid Artocarpin on Suppression of Cancer Stem Cell-like Phenotype"**	Room A	Mod: Jane Melita, S. Si., M. Si. Host: apt. Mahatir Muhammad, S. Farm., M. Si.

No	Time	Event	Venue	Person in charge
	13.00 - 14.00	**Dr. apt. Bambang Marwoto, MEng.** **"Development of Amoxicillin Antibiotic Production by Using Green Technology"**	Room B	Mod: Dr. Henni Chintya, S. Si. Host : apt. Mariadi , S. Farm., M. Si.
	13.00 - 14.00	**Prof. apt. Hakim Bangun, Ph. D.** **"Preparation of Gastroretentive Drug Delivery System of Alginate Beads Containing Turmeric Extract Solid Dispersion to Improve Antibacterial, Antiulcer, and Anti-Inflamatory Effects"**	Room C	Mod : apt. Bayu Eko Prasetyo, M. Sc. Host: apt. Embun Suci, S. Si., M. Farm. Klin.
7.	14.00 - 16.00	Oral Presentation	Zoom In Room A,B,C,D	Jane Melita, S.Si., M. Si. Dr. Henni Chintya, S. Si. apt. Bayu Eko Prasetyo, M.Sc. apt. Embun Suci, S. Si., M. Farm. Klin.

Thursday, November 26th 2020

No	Time	Event	Venue	Person in charge
1.	08.30 - 09.00	Registration	Google form	Committee
2.	09.00 – 11.00	Keynote Speaker	Zoom	MC: apt. Henny Sri Wahyuni, S. Farm., M. Si. Mod : apt. Yuandani, Ph. D. Host: apt. Mahatir Muhammad, S. Farm., M. Si.
	09.00 - 10.00	**Prof. Dr. apt. Azizah Nasution, M. Sc. Ph.D** **"Past, Present and Future of Clinical Pharmacy"**		
	10.00 – 11.00	**Assoc. Prof. Takayuki Kuraishi, Ph. D.** **"Infection Dependent Versus Independent Activation of *Drosophila* Innate Immune Signaling"**		
3.	11.00 - 12.00	Q & A	Zoom	
4.	12.00 - 13.00	BREAK		
5.	13.00 - 15.30	Poster Presentation	Zoom in Room A, B,C,D	Jane Melita, S.Si., M. Si., Dr. Henni Cintya, S. Si. apt. Bayu Eko Prasetyo, M. Sc. apt. Sony Eka Nugraha, S. Farm., M. Si.
6.	15.30 - 16.00	Award presentation and Closing ceremony	Zoom	MC: apt. Henny Sri Wahyuni, S. Farm., M. Si. Host: apt. Mahatir Muhammad, S. Farm., M. Si.

LIST OF ORAL PRESENTATIONS

ROOM A				
No	Participant Code	Author	Tittle	Time
1	OP01	Urip Harahap, Aminah Dalimunthe, Triana Hertiani, Nasri, Denny Satria	The Effect of Extraction Methods Towards Antioxidant and Antimicrobial Activity of *Vernonia amigdalina* Delile. Leaves	14.00 – 14.10
2	OP02	Juriyati Jalil, Ali Attiq, and Khairana Husain	Anti-Inflammatory Activity of Phytochemicals from *Alphonsea elliptica* (Annonaceae)	14.10 – 14.20
3	OP03	Aprilita Rina Yanti Eff, Sri Teguh Rahayu, and Hermanus Ehe Hurit	Investigation of Angiotensin-Converting Enzyme Inhibitory Effects of Indonesian Traditional Medicine: an In-vivo Study	14.20 – 14.30
4	OP04	Hasriyani , R.A. Oetari, Adi Prayitno	The Effect of SGOT-SGPT Levels Hepar After Giving Extract Ethanol Pericarp Mangosteen (G*arcinia mangostana* l.) and α-Mangosten in Hyperglicemic Rats	14.30 – 14.40
5	OP05	Jamia Azdina Jamal, Eldiza Puji Rahmi, Nor-Ashila Aladdin, Endang Kumolosasi, Khairana Husain, Juriyati Jalil	*Marantodes pumilum* (Blume) Kuntze as a Potential Herbal Hemedy for Gout	14.40 – 14.50
6	OP06	Elisa Putri, Yuni Trisnawita, Ullya Arzha[3]	Utilization of Senggani Leaves Ethanol Extract as Antibacterial	14.50 – 15.00
7	OP07	Tan Jiah Ning, Zakiah Jubri, Ibrahim Jantan, Khairana Husain, Norsyahida Mohd Fauzi	Gynura Procumbens Inhibits TNF-α-Induced MCP-1, ICAM-1 and VCAM-1 in Human Endothelial Cells	15.00 – 15.10
8	OP08	Supomo, Eka Siswanto Syamsul, Hayatus Sa`adah R , Kintoko, Hardi Astuti Witasari	Potential Antidiabetic Activities of Akar Kuning (*Fibraurea tinctoria* Lour) Extract in Aloxan Induced Diabetic Rat	15.10 – 15.20
9	OP09	Fahrauk Faramayuda, Totik Sri Mariani, Elfahmi Elfahmi, Sukrasno Sukrasno	Standarization of Two Varieties *Orthosiphon aristatus* Blume Miq ; Potential Medicinal Plants in Indonesia	15.20 – 15.30
10	OP10	Poppy Anjelisa Zaitun Hasibuan, Marianne, Suharyanisa	The Effect of *Plectranthus amboinicus*, (Lour.) Spreng Leaves Ethanol Extract On Uterus Weight, Estrous Cycle and Bone Density In An Ovariectomized Rats Model	15.30 – 15.40

ROOM B				
No	Participant Code	Author	Tittle	Time
1	OP11	St. Maryam, Masdiana Tahir, Nurul Ismi Alifiah and Fina Fitria Sari	The Activity of Kersen Flower Extract (*Muntingia calabu*ra L) as Antioxidant and Inhibitor of Xantin Oxidase Enzyme Against Uric Acid In Vitro	14.00 – 14.10
2	OP12	Iqbal Kamar, Fazrina Zahara, Elisa putri	Identification Content of Medicinal Chemicals (Paracetamol and Prednisone) in Traditional Herbal Medicine	14.10 – 14.20
3	OP13	Dwi Rita Anggraini, Muhammad Ichwan, Yetty Machrina, Syafruddin Ilyas	Expression of p16ink4 in the brain of animal model of d-galactose-induced aging	14.20 – 14.30
4	OP14	Khairana Husain, Zahirah Abd Rani, Endang Kumolosasi, Malina Jasamai, Jamia Azdina Jamal, Juriyati Jalil	In Vitro Anti-Allergic Activity of Selected Medicinal Plants in Malaysia	14.30 – 14.40
5	OP15	Diniatik, Nunuk Aries Nurulita	Antioxidant Activity and Characterization of Dichlormetane Fraction, Ethyl Acetate and Ethanol Extract of *Stelechocarpus burahol* Hook.F. & Thomson) Leaves by Using BCB (*Beta Caroten Bleaching Assay*), FRAP (*Ferric Reducing Antioxidant Power*) Method and Partial Characterization	14.40 – 14.50
6	OP16	Dr. S. Parasuraman, Lam Chew Hui	Effect of Epigallocatechin Gallate on Cadmium-Induced Changes in Spermatogenesis in Male Sprague Dawley rats	14.50 – 15.00
7	OP17	Sony Eka Nugraha, Yuandani	Optimizing Dose and Lipid Lowering Effect of Beetroot (Beta Vulgaris, L) on Doxorubicin Induced Toxicity in Rat	15.00 – 15.10
8	OP18	Masfria, Ginda Haro, Hafid Syahputra, Lisda Rimayani Nasution, Yade Metri Permata, Jennifer Connery, Annisa Rahmayani Manurung, Dina Ngurashinta Perangin Angin	Antioxidant Activity of Eriobotrya Japonica Lindl Fruit from Ethanol Extract by DPPH Method (1,1-diphenyl-2-picrylhydrazyl)	15.10 – 15.20
9	OP19	Romauli Anna Teresia Marbun	Qualitative and Quantitative Analysis of Chemical Compounds of Herba Binara Ethanol Extract (Artemisia Vulgaris l.)	15.20 – 15.30
10	OP20	H.D. Syahputra, Masfria, P.A.Z. Hasibuan	Computational Method of Bioactive Compound from *Ficus religiosa* as Dietary Chemopreventive Agent	15.30 – 15.40

ROOM C				
No	Participant Code	Author	Tittle	Time
1	OP21	Rosnani Nasution	Scurrula Ferruginea Jack Danser Activities As A Sunscreen In Lotion Formulation	14.00 – 14.10
2	OP22	Vivi Asfianti, Artha yuliana sianipar	Antiulcer Activity of Fucoidan from Sargassum polycystum Towards Rats-Induced with Ethanol	14.10 – 14.20
3	OP23	Fazrina Zahara, Elisa Putri, Iqbal Kamar	Formulation and Evaluation of Making Ointments from Betel Leaf Extract (*Piper betle L)* for Wound Healing	14.20 – 14.30
4	OP24	Sumaiyah, Srisanty Mariana Tambunan, Elsakristina Br Hutagalung	Formulation and Characterization of Chloramphenicol Nanosuspension	14.30 – 14.40
5	OP25	Deni Rahmat, Sarah Angela Purnama, Novi Yantih, Yunahara Farida	Combination of Polymer Ethyl Cellulosa and Chitosan for Curcumin Microencpsulation	14.40 – 14.50
6	OP26	Denia Pratiwi, Yan Hendrika	Cosmetic Spray Gel Formulation from Ethyl Acetate Fraction Turmeric Rhizome and Collagen from Catfish (*Pangasius hypopthalmus*) as Antiaging Treatment	14.50 – 15.00
7	OP27	Siti Morin Sinaga, Hariyadi Dharmawan Syahputra, Henni Cintya, Desi Yet Lie	Cream Formulation of C*oriandrum sativum L*eaves Extract as Potent Antiaging and SPF Activity	15.00 – 15.10
8	OP28	Anayanti Arianto, Hakim Bangun, Sumaiyah, Rahel Pesta Panjaitan, Christy Natasya Dwiyanti Putri Siregar[5]	The Use of Vegetable Oils (Raspberry Seed Oil and Carrot Seed Oil) to Formulate Nanoemulgel as Natural Sunscreen	15.10 – 15.20
9	OP29	Ifmaily, Suai Batul Islamiyah and putri Rizki Fitriani	The Effectivity of Suruhan (*Peperomia pellucida L. Kunth*) Leavess Extract Gel Againts the Number of Macrophage Cells, Neutrophils Cells, and the Percentage of Burns Healing	15.20 – 15.30
10	OP30	Masfria, Sahril Siregar, Franky	Analysis Of Some Minerals From Leaves And Antioxidant Activities Of Fruit *Phyllantus emblica* L.	15.30 – 15.40

ROOM D				
No	Participant Code	Author	Tittle	Time
1	OP31	Rachmawati Felani Djuria	Effectiveness of Drug Information Services Implementation in Pangkalpinang City Health Centers	14.00 – 14.10
2	OP32	Nor Syafinaz Yaakob, Muhammad Harith Zulkifli, Praveena Viswenaden, Lam Kok Wai, Norazrina Azmi, Malina Jasamai, Syaratul Dalina Yusoff, Fhataheya Buang	Characterisation of 6-Gingerol Binding to 5-HT_3R and Its Effects on Nicotine Addiction and Withdrawal	14.10 – 14.20
3	OP33	Rusdiana Rusdiana , Sry Suryani Widjaja, Maya Savira, Rina Amelia, Rusmalawati	The Assessment Hypoxia Inducible Factor-1α level and Vascular Endothelial Growth Factor Level at Type 2 Diabetes Mellitus Patients, In North Sumatera, Indonesia	14.20 – 14.30
4	OP34	Hijra Novia Suardi, Suryawati, Vera Dewi Mulia	Mini Review: Implications of Using Herbs on the Incidence of Drug-Herbal Interaction	14.30 – 14.40
5	OP35	Lita Feriyawati, Tetty Aman Nasution, and Dwi Rita Anggraini	Clinical Report and Identification of Human Papillomavirus 16 and 18 in Reproductive Women	14.40 – 14.50
6	OP36	Ni Nyoman Wahyu Udayani, I Made Agus Sunadi Putra, Puguh Santoso	Analysis of the Potential Interaction of type 2 Diabetes Mellitus Medicine with Hypertension of Patients of Road Care BPJS in One of the Hospitals of Badung District	14.50 – 15.00
7	OP37	Okta Muthia Sari, Noor Cahaya, Khoerul Anwar, Sandra Putri Wijaya	Analysis of Incident of Parkinsonism in Schizophrenic Patients Receiving First-Generation Antipsychotic Drug	15.00 – 15.10
8	OP38	Rahmi Yosmar, Nurul Pertiwi, Utami Budhi Fadilla, Elsa Badriyya	The Impact of the Covid-19 Pandemic on Nurses Mental Health in Government Hospital in Padang City	15.10 – 15.20
9	OP39	Malina Jasamai, Yap Wei Boon, Aurapa Sakulpanich and Azmath Jaleel	Dengue Infection: Preventive Measures and Potential Treatments	15.20 – 15.30
10	OP40	Hari Ronaldo Tanjung, Tika Artika Sari	Drug Utilization Profile in the Emergency Room at a Government Hospital	15.30 – 15.40

LIST OF POSTER PRESENTATIONS

ROOM A				
No	Participant Code	Author	Tittle	Time
1	PP01	Siti Salmiah, Khairunnisa, Efranita Ndruru, Annisa Farahdiba	Effectiveness Comparison of Green Tea, Probiotic and Chlorhexidin Mouthrinses against *Streptococcus mutans* in 12-15 Years Old Children in Medan City)	13.00 – 13.05
2	PP02	Eva Diansari Marbun, Supartiningsih	Microbial Growth Test in Made from Kepok Banana (*Musa paradisiaca*, L) as a Natrium Media Substitution in Order	13.05 – 13.10
3	PP03	Asiska Permata Dewi, Dini mardhiyani	Phytochemical screening of ketapang leaves extract and antibacterial activity test of escherichia coli	13.10 – 13.15
4	PP04	Siti Morin Sinaga, Hariyadi Dharmawan Syahputra, Henni Cintya	The Effect of Coriandrum sativum Ethanolic Leaves Extract as Potential Antimicrobes Agent	13.15 – 13.20
5	PP05	Helen Anjelina Simanjuntak, Rahmiati, Toberni Santika Situmorang, Hermawan Purba, Defacto Firmawati Zega, and Panal Sitorus	Phytochemical Screening and Antidiarrheal Activity Test In-vivo and In-vitro Ethanol Extract of a Jackfruit (*Artocarpus heterophyllus* Lamk.) from Sumatera Utara	13.20 – 13.25
6	PP06	Tri Widyawati, Siti Syarifah, Dwi Rita Anggraini, and Lolyta Fitri Mustanti	Phytochemical Screening of Standardized Ethanol Extract of Propolis	13.25 – 13.30
7	PP07	Tri Widyawati, Siti Syarifah, Dwi Rita Anggraini, and Lolyta Fitri Mustanti	Phytochemical and Physicochemical Screening of TTemulawak (*Curcuma xanthorriza*)	13.30 – 13.35
8	PP08	Hafiz Ramadhan, Dyera Forestryana	Comparison of Total Phenolic Content and Antioxidant Activity Between Maceration and Reflux extraction on Galam Sawdust (*Melaleuca leucadendron* linn.)	13.35 – 13.40
9	PP09	Putu Gita Maya Widyaswari Mahayasih, Harizal, Islamudin Ahmad, and Herman	Optimization of Microwave Assisted Extraction of Polyphenolic Content from Combination of *Centella asiatica and Zingiber officinale*	13.40 – 13.45
10	PP10	Dewi Pertiwi, Panal Sitorus, Ihsanul Hafiz	Antimicrobial Activity of N-hexane and Water Fraction of Pagoda Leaves (*Clerodendrum paniculatum* l.)	13.45 – 13.50
11	PP11	Ahmad Purnawarman Faisal, Pratiwi Rukmana Nasution, and Riza Fahlevi Wakidi	Identification of Secondary Metabolites and Activities Antioxidants of Bintangur Leaves (Calophyllum inophyllum L.) Againts DPPH Free Radicals (1.1 Diphenyl-2-Picrylhydrazyl)	13.50 – 13.55

ROOM A				
No	Participant Code	Author	Tittle	Time
12	PP12	Nazliniwaty, Olivia Avrianti Hanafiah, Dewi Pertiwi, Denny Satria	In Silico Analysis of Flavonoid Compounds from *Artocarpus* Genus in Inhibit Glycogen Synthase Kinase-3β (GSK-3β)	13.55 – 14.00
13	PP13	Rosidah, Jansen Silalahi, Muhammad Fauzan Lubis, Mahatir Muhammad, Denny Satria	Chemical Compounds from *Saurauia vulcani* Korth. Leaves as Potent Hypilipidemic Agent: In Silico Docking Analysis	14.00 – 14.05
14	PP14	Dita Ayulia Dwi Sandi, Eka Fitri Susiani, I Ketut Adnyana, Pratiwi Wikaningtyas	Antioxidant Activity of Edible Bird's Nest (*Aerodramus fuciphagus*) Water Extract Using DPPH, NO, FRAP and CUPRAC Methods	14.05 – 14.10
15	PP15	Muchlisyam, Yade metri Permata, Hafid Syahputra	Evaluation of Dextromethorphan HBR and Glyceryl Guaiacolate Mixture by Derivative Spectrophotometric and High-Pressure Liquid Chromatography Methods	14.10 – 14.15
16	PP16	Julia Reveny, Hetty Lendora Maha, Lia Laila	Comparative Study of Phytochemical Screening and DPPH Radical Scavenging Activity of Ficus carica Linn. Leaves Extracts	14.15 – 14.20
17	PP17	Suci Fitriani Sammulia, Suhaera, Anggun Setyarini	Formulation and Physical Evaluation Svae Tablet from Waste of Gong-gong Snipe Shells *(strombus turturella)*	14.20 – 14.25
18	PP18	Lilik Sulastri, Rakhmat Ramdhani, M. Ikhwan Setiawan, Achmad Fauzi Isa, Padmono Citroreksoko, Nuzul Gyanata, Partomuan Simanjuntak	Combination of Polyherbal Leaves (*Camellia sinensis* (l). Kuntze), *Stevia rebaudiana* bertoni, *Smallanthus sonchifolius* and *Syzygium polyanthum* (wright) walp, as a Source of Bioactive Antioxidants	14.25 – 14.30
19	PP19	Kasta Gurning, Damson A. Lumbangaol, Iksen, Risanti F.R. Situmorang, and Suharni P. Sinaga	Determination of Phenolic, Flavonoid Content, and Antioxidant Activities of Seri *(Muntingia calabura* L.*)* Leaves Ethanol Extract	14.30 – 14.35
20	PP20	Sry Suryani Widjaja, Rusdiana Rusdiana, M. Ichwan	Antioxidant and Cytotoxic Effect of Belalai Gajah Leaves (Sabah Snake Grass)	14.35 – 14.40
21	PP21	Putri indah sayakti[1*], hafiz ramadhan[2]	Identification of quercetin on ethyl acetate fraction and aqueous fraction of binjai (*mangifera caesia* jack. Ex. Wall) leaves methanol extract using hplc	14.40 – 14.45

ROOM A				
No	Participant Code	Author	Tittle	Time
22	PP22	Hermawan Purba, Helen Anjelina Simanjuntak, Kasta Gurning, Liber Napitupulu, Fransiska Riati Nova Simbolon	Validation Method Analysis of Tannin Based on Tanic Acid-Folin Ciocalteu Using Spectroscopy UV-Vis and Antioxidant Activity Test	14.45 – 14.50
23	PP23	Henny Sri Wahyuni, Sri Yuliasmi,Lia Laila, Annisa Soraya, Devi Riati	Study Comparative of Coffee Leaves (Coffea robusta l. Linden) Phenolic Content by Using Green Extraction	14.50 – 14.55
24	PP24	Athina Mardatillah, Dadan Suryasaputra, Rike Hasanah Kaniaty	Synthesis of Iodo Eugenol Using Chloramine T	14.55 – 15.00
25	PP25	Yulanda Antonius, AUW, Natasha Felicia Karnadi, Marisca Evalina Gondokes Yuana Elly Agustin	Exploration the Mechanism of Xanthone Deri Compound in Injury Recovery Process Based Systematic in Silico Analysis	15.00 – 15.05
26	PP26	Aristha Novyra Putri, Revi Saputri, Karunita Ika Astut Puspita Sari, Teuku Nanda Saifullah Sulaiman	Specific and Non Specific Parameters Standardization of Ethanolic 96% Extract of Kersen Leaves (*Muntingia calabura* L.)	15.05 – 15.10

ROOM B				
No	Participant Code	Author	Tittle	Time
1	PP27	Tri Widyawati, Siti Syarifah, Imam Bagus Sumantri, Hayatun Nufus	Evaluation of Preliminary Model Diabetes Mellitus Type Ii In Rat	13.00 – 13.05
2	PP28	Reny Haryani, Mustafa Ridwan Lubis, Denny Satria, Ambali Azwar Siregar, Mhd. Rafi'i Ma'arif Tarigan	Anticancer Activity Of Ethanol Extract Of *Litsea cubeba* Lour. Fruits Against Htb-182 Lung Cancer Cells	13.05 – 13.10
3	PP29	Tri Widyawati, Siti Syarifah, Imam Bagus Sumantri, Hayatun Nufus	Preliminary Evaluation of High Fat Diet In Rats	13.10 – 13.15
4	PP30	Dadang Irfan Husori, Marianne, Popi Patilaya, Audrey Nabila Febrika	Acute Toxicity Studies of The Combination of The Ethanolic Extract of *Andrographis paniculata* Herb, *Centella asiatica* Herb, and *Curcuma heyneana* Rhizome In Rats	13.15 – 13.20
5	PP31	Eva Sartika Dasopang, Fenny Hasanah, Anastasia Armayunita Putri	Analysis of Anti Tuberculosis Drug Resistance Using Genexpert At RSUPH Adam Malik Medan	13.20 – 13.25
6	PP32	Siti Morin Sinaga, Maralaut Batubara, Hariyadi Dharmawan Syahputra, Henni Cintya	Computational Method Of Coriandrin Leaves (*Coriandrum sativum L*) Anti Inflamatory Agent and Celexocib	13.25 – 13.30
7	PP33	Yuandani, Sony Eka Nugraha, Lia Laila, Denny Satria, Rony Ady Syahputra, Sasniwiati Sari Hasibuan	Immunomodulatory Effect Of 50% Ethanol Extract Of *C. mangga* Rhizomes On Cellular Immunity And Its Curcumin Content	13.30 – 13.35
8	PP34	Faizal Hermanto, Anna Choerunisa	In Vivo Antimalarial Activities of Combination Water Extract of Coat Buttons Herbal (*Tridax procumbens* L) And Neem Leaf (*Azadirachta indica* A. Juss)	13.35 – 13.40
9	PP35	Adhisty Kharisma Justicia, Ratna Widyasari, Agustina	The Antidiabetic Activity of The Ethanol Extract of The Lime Peel (*Citrus aurantifolia* (Christm) swingle) On The White Swiss Webster Mice (*Mus musculus*) With Alloxan Method	13.40 – 13.45
10	PP36	Aminah Dalimunthe, Panal Sitorus, Mahatir Muhammad, Denny Satria	Cytotoxicity Effect of Ethanol Extract Of *Litsea cubeba* Lour. Fruits Towards Her-2 Overexpressed-Cancer Cells HCC 1954	13.45 – 13.50

ROOM B				
No	Participant Code	Author	Tittle	Time
11	PP37	Ahmad Syukur Hasibuan	Cytotoxicity Activity of Combination Fraction of *Chromolaena odorata* L. Leaves and *Phaleria macrocarpa* Fruits Against 4t1 and MCF-7 Breast Cancer Cells	13.50 – 13.55
12	PP38	Muharni Saputri, Yessi Febriani, Suci Armayani	Sedative Effectiveness Test of Ethanol Extract of Lemongrass Leaves (*Cymbopogon nardus* (L.) Rendle) Against Male Mice (*Mus musculus*)	13.55 – 14.00
13	PP39	Marianne, Poppy Anjelisa Zaitun Hasibuan, Sartika Ramadhayani, Rini Afrilia Siagian, Ayunda Safira	Antidepressant Activity of *Curcuma heyneana*: Increasing Locomotor Activity and Decreasing Immobility Time In Mice	14.00 – 14.05
14	PP40	Dadang Irfan Husori, Popi Patilaya, Desy Ariyanti Panjaitan, Izza Armadina Shulha	Antisecretory Effect of Extract Combination of Pegagan (*Centella asiatica*) and Sambiloto (*Andrographis paniculata*) Leaves Ethanolic Extract on Pyloric Ligated-Induced Gastric Ulcer In Rats	14.05 – 14.10
15	PP41	Dadang Irfan Husori, Urip Harahap, Aminah Dalimunthe, Syafruddin Ilyas	**Toxicological Safety Evaluation In Acute Studies Of *Artocarpus altilis Leaves* Ethanolic Extract**	14.10 – 14.15
16	PP42	Dadang Irfan Husori, Fitri Rizki Ananda	Gastroprotective Effects of Bangun-Bangun (*Plectranthus amboinicus*) Leaves Ethanolic Extract Against Water-Immersion and Cold-Restraint Stress-Induced Gastric Ulcer In Rats	14.15 – 14.20
17	PP43	Dadang Irfan Husori, Tria Andria	Gastroprotective Effect of Ethanolic Extract Of Remek Daging (*Strobilanthes alternata*) Leaves Against Stress-Induced Gastric Mucosal Lesions In Rats	14.20 – 14.25
18	PP44	Dadang Irfan Husori, Agatha Margaret	Evaluation of The Anti-Ulcer Activity Of The Ethanolic Extract of Remek Daging (*Strobilanthes alternata*) Leaves On Pyloric Ligation Induced-Gastric Ulcer	14.25 – 14.30
19	PP45	Kesaktian Manurung, Delmi Sulastri, Nasrul Zubir, Syafruddin Ilyas	Anticancer Activity of *Plectranthus amboinicus* Leaves Ethanolic Extract against WiDr Colorectal Cancer	14.30 – 14.35
20	PP46	Jansen Silalahi, Yuandani, Ibrenna Glorius Manik, Denny Satria	The Wound Healing Effect of Hydrolyzed Virgin Coconut Oil Ointment Towards Rats With Excision Wound	14.35 – 14.40

ROOM B				
No	Participant Code	Author	Tittle	Time
21	PP47	Sofa Fajriah, Megawati Megawati, Akhmad Darmawan	Cytotoxic Compounds From *Artocarpus elasticus* Reinw. Ex Blume Leaves	14.40 – 14.45
22	PP48	Nurlely, Noor Cahaya, Valentina Meta Srikartika, And Dini Marlina	Histopathological Changes of Liver Rats After A Single Dose Administration of Ethanolic Extract of *Croton argyratus* Blume Stem Bark	14.45 – 14.50
23	PP49	Masfria Masfria, Marianne, Yade Metri Permata, Sri Mulyani	Diuretic Activity From Nanoparticles of Ekor Naga Leaves (*Rhaphidophora pinnata* (L.F.) Schott.)	14.50 – 14.55

ROOM C				
No	Participant Code	Author	Tittle	Time
1	PP50	Erni Rustiani, Ike Yulia Wiendarlina, Intan Awaliyah	Development and In Vitro Evaluation of Mucoadhesive Microgranules of Cinnamon Bark Extract with Variation of Chitosan	13.00 – 13.05
2	PP51	Suci Fitriani Sammulia, Suhaera, Anggun Setyarini	Formulation and Physical Evaluation Svae Tablet from Waste of Gong-gong Snipe Shells *(Strombus turturella)*	13.05 – 13.10
3	PP52	Fikri Alatas, Wulan Anggraeni, and Adelia Pinky Dwi	Co-crystal Dexibuprofen-Nicotinamide with Improvement of Mechanical Properties	13.10 – 13.15
4	PP53	Nikmatul Ikhrom Eka Jayani, Bill Lewaraja Salawane, Hendro Yonan Pelopolin, Karina Citra Rani	Granules Formulation of Guava Leaves with Purple Sweet Potatoes and Guava Leaves with Cinnamon as Functional Beverages	13.15 – 13.20
5	PP54	Delladari Mayefis, Sri Hainil	Cream Formulation of Marine Sponges from Natuna (A*plysina fistularis*) Extract and Antioxidant Activity Test Using the DPPH (*1.1-diphenyl-2-picrylhydrazyl*) Methode	13.20 – 13.25
6	PP55	Karina Citra Rani, Nani Parfati, Tan Sherly Evelina, Cherry Christianto	The Development of Moringa Oleifera Leaf Cereal Using Full Cream Milk and Soy Milk as Fillers	13.25 – 13.30
7	PP56	Dewi Melani Hariyadi, Tutiek Purwanti, Dinda Maulydia, Cindy Alicia Estherline, Esti Hendradi, Mahardian Rahmadi	Characteristics and Release of Kappa Carragenan Microspheres Encapsulating Ciprofloxacin HCl: Effect of Polymer Concentration	13.30 – 13.35
8	PP57	Lili Fitriani, Astika, and Erizal Zaini	Preparation Multicomponent Crystal of Curcumin and Quercetin	13.35 – 13.40
9	PP58	Sriramcharan. P, Jawahar, V.Senthil, Justin A, G.Nagaraju	Biodirected Green Synthesis of Cerium Oxide Nanoparticles for Effective Management of Alzheimer Disease	13.40 – 13.45
10	PP59	Tengku Ismanelly Hanum, Hetty Lendora Maha, Henny Sri Wahyuni, Rahmad Fadly, Indah Yuliasari Saragih	Nanoparticles of Ethanol Extract Kersen Leaves (*Muntingia calabura* L.) : Preparation and Anti-Inflammatory Activity	13.45 – 13.50
11	PP60	Bayu Eko Prasetyo, Ade Kaevin, Fenny Hasanah and Lia Laila	The Influence of Kenikir (C*osmos caudatus* Kunth) Ethanol Extract Concentrations on Peel off Gel Formula and Its Anti-aging Effect	13.50 – 13.55
12	PP61	Hetty Lendora Maha, Bayu Eko Prasetyo, Mariadi	Formulation and Permeation Studies of Miconazole Nitrate Gel Containing Dimethyl Sulfokside as an Enhancer	13.55 – 14.00

ROOM C				
No	Participant Code	Author	Tittle	Time
13	PP62	MS Lubis, Ridwanto	Photoprotective Effects of Corn (*Zea mays* L.) Husk And Silk Extract and Gel Dosage From	14.00 – 14.05
14	PP63	Tengku Ismanelly Hanum, Azizah Nasution, Sumaiyah, Hakim Bangun	Physical Stability and Dissolution of Ketoprofen Nanosuspension Formulation: Polyvinylpyrrolidone as Stabilizer	14.05 – 14.10
15	PP64	Isna Wardaniati , Deri Islami	Formulation Gel Mask from Extract Propolis and Aloe Vera as Anti Aging and Anti Acne	14.10 – 14.15
16	PP65	Poppy Anjelisa Zaitun Hasibuan, Yuandani, Masita Tanjung, Ardiansyah Sembiring, Averroes F Piliang, Saharman Gea, and Muhammad Fauzan Lubis	Antimicrobial Activity of Chitosan-Silver Nanoparticle and Microbial Charactization of Nanofibre Cellulose	14.15 – 14.20
17	PP66	Naresh P, Jubie S, Shyam Sundar P, Chandra Shekar Mjn, Girija K,	A Novel Design and Development of Early DENV Inhibitors as Potential Anti Dengue Lead Compounds	14.20 – 14.25

ROOM D				
No	Participant Code	Author	Tittle	Time
1	PP67	Muhammad Reza Pahlevi, Aulia Rahim	Brief Counseling Methods to Improve Drug Compliance and Hypertension Therapy Effectiveness in Khanza Pharmacy, Gambut, South Kalimantan	13.00 – 13.05
2	PP68	Khairunnisa, Sri Wahyuni, Urip Harahap	The Correlation Between the Characteristics of Hypertension Patients with Knowledge and Medication Adherence	13.05 – 13.10
3	PP69	Amalia Meutia, Dina Nazriani	Academic Stress and Coping Stress of College Students in Universitas Sumatera Utara	13.10 – 13.15
4	PP70	Dina Nazriani, Amalia Meutia	Psychometrics Evaluation of Geneva Emotion Wheel	13.15 – 13.20
5	PP71	Nadroh Sitepu, Nurul Hidayah, Sri Widia Ningsih	Evaluation of the Rationality of Using Antihypertensive Drugs in Patients Hypertension Comorbid Chronic Kidney Disease in Medan	13.20 – 13.25
6	PP72	Manahan Situmorang, Wiryanto, and Khairunnisa	Analysis of Adherence Correlation and Quality of Life of Dyslipidemia Patients: A Case Studies in Pharmacy	13.25 – 13.30
7	PP73	Nicmah Aprilia Iriani Putri, Ema Pristi Yunita, Hananditia Rachma Pramestutie	The Relationship of Sociodemographic Factors to The Satisfaction of Clinical Pharmacy Services(The Study was Conducted on BPJS Health Patients in the Outpatient Polyclinic of"X" Hospital in Malang Regency)	13.30 – 13.35
8	PP74	Syilvi Rinda Sari,Khairunnisa, Aminah Dalimunthe	Drug Use Evaluation of Outpatients in Pharmacy Installation at Universitas Sumatera Utara Hospital	13.35 – 13.40
9	PP75	Dumartina Hutauruk, Khairunnisa, and Wiryanto	Effect of Adherence with Clinical Outcomes and Quality of Life of Primary Hypertension Patients in Pharmacy	13.40 – 13.45
10	PP76	Debi Triana, Saminan, Masra Lena Siregar, Teuku Mamfaluti, Teuku Romi Imansyah Putra, Sarah Firdausa	The Correlation of Smoking Degree with Gastroesophageal Reflux Disease by Using Gerdq	13.45 – 13.50
11	PP77	Narmawan	Overview of Smoking Behavior in Community in Poasia District Kendari City	13.50 – 13.55
12	PP78	Rina Amelia, Juliandi Harahap, Hendri Wijaya, Reni Asmara Ariga	Correlation of Hydroxy Vitamin D (25OH-D) Levels with Lipid Profile in Type 2 DM Patients in Medan. Indonesia	13.55 – 14.00

ROOM D				
No	Participant Code	Author	Tittle	Time
13	PP79	Rina Amelia, Dina Keumala Sari, Riri Andri Muzasti, Hendri Wijaya, Reni Asmara Ariga	Correlation Between Hydroxy Vitamin D (25OH-D) and Albumin Creatinine Ratio (ACR) for Screening of Diabetic Nephropaty Complications in Type 2 DM Patients in The City of Medan. Indonesia	14.00 – 14.05
14	PP80	Juliandi Harahap, Lita Sri Andayani	Effect of Pesticides Exposure on Kidney Function and Cholinesterase Levels in Spraying Workers in Oil Palm Plantations	14.05 – 14.10
15	PP81	Indri Hapsari, Shintia Lintang Charisma,Nofita Fitri Kurniasih	Comparison of Antibiotic Sensitivity in Pulveres and Finished Drug Preparations for Bacteria in Sputum for Children Ari Patients in Banyumas District Health Center	14.10 – 14.15
16	PP82	Ratna Kurnia Illahi, Firiyal Okta Safarah, Hananditia Rachma Pramestutie, Ayuk Lawuningtyas Hariadini	The Effectiveness of Homecare Pharmacy to Increase Patients' Knowledge and Adherence to Therapy: A Six (6) Months' Study in Hypertensive Patients	14.15 – 14.20
17	PP83	Kiki Rawitri, Khairunnisa, Wiryanto	The Correlation of Medication Adherence to Clinical Outcomes and Quality of Life for Type 2 Diabetes Mellitus Patients	14.20 – 14.25
18	PP84	Mien, Siti Hadrayanti Ananda, Diah Indriastuti	Implementation of Health Education in The Fourth Step at Posyandu to Prevent Anemia Mother	14.25 – 14.30
19	PP85	Ivana Alona, Juliandi Harahap, Andike Aribi, Riyadh Ikhsan	Assessment of Healthcare Professional's Knowledge, Skill, Motivation, and Commitment on Clinical Pathways Implementation in Hospital of Universitas Sumatera Utara	14.30 – 14.35
20	PP86	Juliandi Harahap, Lita Sri Andayani, and Rina Amelia	Child Development Assessment by Using Indonesian Pre-Screening Developmental Questionnaire and The Comparison of Knowledge Levels of Health Cadres and Mothers about Child Growth and Development in Deli Serdang District	14.35 – 14.40
21	PP87	Juliandi Harahap, Lita Sri Andayani, and Rina Amelia	The Role of Family Support, Family Functions, and Peer Group Support for the Quality of Life of The Elderly in Medan Tuntungan District, Medan City	14.40 – 14.45
22	PP88	Ren Amirah Siregar, Juliandi Harahap, Rina Amelia, Nurfida Khairina Arrasyid	Analysis of Serum Total Immunoglobulin E (Ige) Levels and Eosinophil Counts in Elementary School-Age Orphans with Soil Transmitted Helminths Infections	14.45 – 14.50
23	PP89	Puspa Sari Dewi, Catur Putri Rahmawati, Raina Davita, Sri Wahyuningsih, Vina Septiani	Potential of Water Extract of Kirinyuh Shoots (*Chromolaena odorata* (l.) King & H. Rob.) as Antidiabetic	14.50 – 14.55

ROOM D				
No	Participant Code	Author	Tittle	Time
24	PP90	Jansen Silalahi, Rosidah, Dewi Pertiwi, Abdi Wira Septama, Denny Satria	The Effect of Incubation Time Towards Cytotoxicity Activity of Curcumin on Melanoma B16F10 Cell Lines	14.55 – 15.00

ABSTRACT OF KEYNOTE SPEAKER

Novel Drug Delivery Systems for Improving the Bioavailability and Efficacy of Herbal Medicines

Ruedeekorn Wiwattanapatapee

Department of Pharmaceutical Technology, Faculty of Pharmaceutical Sciences,
Prince of Songkla University, Hat Yai, Songkhla 90112, Thailand
Email: rudeegorn.w@psu.ac.th

Abstract

Several natural compounds and their derivatives have shown potential as therapeutic agents against cancers, inflammation, microbial infection and other important diseases. However, the poor oral bioavailability due to their low aqueous solubility, poor intestinal absorption and rapid metabolism, are the important limitation in clinical uses. Many strategies have been employed in order to overcome these barriers and improve their therapeutic efficacy. In this presentation, the application of some novel oral drug delivery systems for herbal medicines will be highlighted. Self-microemulsifying formulations have been shown to significantly improve solubility, oral absorption and bioavailability of various natural compounds such as curcumin, oxyresveratrol and andrographolide from a crude extract of *Andrographis paniculata*. Recently, the raft-forming gastro-retentive formulations based on curcumin and *Centella asiatica* extract have been successfully developed to achieve prolong gastric residence time and thus increase the effectiveness of gastric ulcer treatment.

Utilizing Computer Aided Drug Design for Drug Discovery from Natural Product

Habibah A Wahab

School of Pharmaceutical Sciences,
Universiti Sains Malaysia 11800, P. Pinang, Malaysia.
Email: habibahw@usm.my

Abstract

Natural products have long been used as the source of medicines for the treatments of various diseases and ailments. However, their use has been in decline in the past two decades due to technical requirements in high throughput screening, difficulties associated with the repeated isolation of known compounds as well as the synthesis during pharmaceutical manufacture. However, these difficulties can partly be overcome by embracing latest technologies in drug discovery. One of the technologies is computer aided drug design. The strategy of computer aided drug design, with successful examples from our researches will be highlighted here to illustrate the efficiency of this technology in discovering active compounds from natural products. It is hoped the presentation will pave the way for more researches in natural products in combination with computer aided drug design in the quest to search for potential drugs from natural products.

Infection-dependent versus -independent activation of *Drosophila* innate immune signaling

Takayuki Kuraishi

Faculty of Pharmacy, Institute of Medical,
Pharmaceutical and Health Sciences, Kanazawa University
Email: tkuraishi@staff.kanazawa-u.ac.jp

Abstract

Fruit fly, *Drosophila melanogaster*, is a sophisticated model animal which possesses an evolutionary conserved innate immune system as represented by the Toll signaling pathway in metazoa. Despite a significant contribution for the identification of mammalian Toll-like receptors, the molecular basis of the intracellular Toll pathway in flies still remains unclear. To identify genes responsible for Toll signaling, we performed in vitro genome-wide RNAi screenings. Based on the screenings, we found that Sherpa, a HECT domain-containing E3 ligase, is necessary for the Toll pathway. A loss-of-function sherpa mutant exhibited compromised expression of antimicrobial peptides whose induction are under the control of the Toll pathway, and susceptibility to Gram-positive bacterial infection. Sherpa was required for a post-translational modification on dMyd88, and for the proper subcellular localization of the dMyd88. These findings suggest the importance of Sherpa-mediated regulation of dMyd88 functions in Toll innate immune signaling. Mechanisms of sterile induction of innate immunity will also be discussed in this presentation.

Past, Present and Future of Clinical Pharmacy

Azizah Nasution

Department of Pharmaceutical Pharmacology, Faculty of Pharmacy,
Universitas Sumatera Utara, Medan, Indonesia.
Email: azizah@usu.ac.id

Abstract

Objective: This paper aimed to discuss the roles of clinical pharmacy (CP) in the past, present, and future.
Methods: This review article was prepared by extracting primary, secondary, and tertiary information regarding CP services in the past, present, and future to promote the save, effective, and economic use of health resources for individual patients.
Results: The emergence of CP was associated with poor control of drug uses and produced unwanted effects, harms, and even severe defects to patients. Clinical pharmacy has shown to play important roles in drug utilization, identifying, and resolving drug related problems (DRPs), reducing adverse drug reactions (ADRs), optimizing effective and efficient use of scarce resources in individual treatment of patients. In developed countries, CP services have involved promotion of health and wellness, disease prevention, immunization, and vaccination programs. More advanced organizational activities that involve CP include systematic analysis and meta-analysis, value of information (VOI) analysis as well as health technology assessments (HTA). In Indonesia, CP services are still limited to prescription screening and services, assessment of medication history, medication reconciliation, drug information service, patient counseling, dispensing, drug therapy monitoring, monitoring of drug side effects, drug use evaluation, dispensing of sterile drug products. The scarce available health resources may be the constraints of this limited CP services.
Conclusions: CP services globally play important roles to promote save, effective, and efficient uses of medications in health cares. Efforts to improve the roles of CP should be continuously be made to improve healthcare.
Keywords: Clinical pharmacy, health resources

ABSTRACT OF INVITED SPEAKERS

Preparation Of Gastroretentive Drug Delivery System Of Alginate Beads Containing Turmeric Extract Solid Dispersion To Improve Antibacterial, Antiulcer, and Anti-Inflamatory Effects

Hakim Bangun

Faculty of Pharmacy, Nanomedicine Centre,
Universitas Sumatera Utara
Emal: hakimb17@yahoo.com

Abstract

Objective: To determine the antibacterial, antiulcer, and anti-inflammatory effects of gastroretentive drug delivery system of alginate beads containing turmeric extract solid dispersion.
Methods: Turmeric powder was macerated with 96% ethanol for 8 days. The macerate was evaporated with a rotary evaporator at 50°C to obtain a concentrated extract. Turmeric extract solid dispersion was prepared by the solvent method using polyvinylpyrrolidone (PVP) as a carrier. The turmeric extract solid dispersion was encapsulated with alginate gel by gelation method. Antibacterial activity was tested using the hole method against *Staphylococcus aureus* and *Escherichia coli bacteria*. The antiulcer test was performed on rats with gastric ulcer that induced by 0.6 N HCl solution. The ulcer healing was observed macroscopically and microscopically (histopathology). The anti-inflammatory effect was carried out using the paw edema method in rats.
Results: Antibacterial activity test against *Staphylococcus aureus* and *Escherichia coli* showed that alginate beads containing a solid dispersion of turmeric extract were stronger antibacterial effect than turmeric extract. A Gastroretentive drug delivery system of alginate beads containing turmeric extract solid dispersion was more effective in healing the gastric ulcer than turmeric extract. Alginate beads containing a solid dispersion of turmeric extract gave stronger anti-inflammatory activity than turmeric extract.
Conclusion: Alginate beads containing turmeric extract solid dispersion improve the antibacterial, antiulcer, and anti-inflammatory effects of turmeric extract.

Keywords: Turmeric extract, solid dispersion, alginate beads, gastroretentive, antibacterial, antiulcer, anti-inflammatory.

The potency of prenylated flavonoid artocarpin on suppression of cancer stem cell-like phenotype

Abdi Wira Septama

Research Center for Chemistry, Indonesian Institute of Sciences
Email: abdiwiraseptama@gmail.com

Abstract

Cancer stem cells (CSCs) residing in lung cancer is responsible for cancer progression and treatment failure. CSCs is a tumor cell which has the ability to self-regenerate and to cause heterogeneous cancer cell lineages that make up the entire tumor. There are two points that reinforce the hypothesis that derive from normal tissue stem cells. First, CSCs share a lot of features with normal stem cells, such as differentiation, self-renewal, migration ability and drug resistance. Second, the durability of stem cells causes them vulnerable to cumulative genetic and epigenetic risk in a way that makes them successful candidates for the growth of the neoplastic transition. β-catenin protein plays an important part in proliferation of cell, enhancing cell survival and facilitating tumor growth. Artocarpin is an isoprenyl flavonoid compound plays a role to suppress β-catenin or TCF complex formation by occupying their binding regions. Artocarpin also possess high potential as anticancer agent. There are a variety of different forms in which flavonoids are affected by carcinogenesis, such as inhibition of β-catenin and TCF4 interactions. Physical inhibition of the interaction of β-catenin with TCF results in suppression of TCF target gene expression. CSCs were isolated from lung adenocarcinoma cell lines (H460) and was characterized using flowcytometer. The effect of artocarpin in suppressing CSCs gene expression was evaluated using qRT-PCR. A docking system was used to evaluate the binding of purified artocarpin compound to the active pocket of β-catenin and was validated using RT-PCR analysis. The H460 CD166+/CD44+ phenotypes exhibited multipotent characteristics of CSCs. The number of cells differentiates into multilineage cells types reduced upon artocarpin. The self-renewal capability of cells decreased and exhibited lower expression of CSCs transcription factors after treatment. In terms of binding energies and interactive residues, the best docked complexes are made (-7.04 kcal/mol) belonging to artocarpin compared to binding energy of exhibited by other inhibitors which were consistent with the experimental cytotoxicity and RT-PCR data. This study revealed that artocarpin enabled to suppress the expression of CSCs-like phenotype. This compound was found to be strongly bound to the active site of TCF4 with large inhibitory effects on complex formation of β-catenin/TCF4.

Development of Amoxicillin Antibiotic Production by using Green Technology

Bambang Marwoto

Agency For The Assessment And Application Of Technology (BPPT)
Email: bangmr@yahoo.com

Abstract

Antibiotics have become one of the most common classes of drugs, used to prevent and treat infections. Penicillin is one of the oldest and the most commonly used groups of antibiotics at present, as there almost no new classes of antibiotics that have been discovered since the 1980s. Penicillin can be divided into two groups, namely natural and semisynthetic penicillins. Natural penicillins are produced from the fermentation of the fungus *Penicillium chrysogenum*.

Amoxicillin is acid stable, semi-synthetic drug belongs to a class of antibiotics called the Penicillins (□-lactam antibiotics). It is proved to be effective against a wide range of infections caused by a wide range of Gram positive and Gram negative bacteria. Amoxicillin is an antibiotic that is much needed in Indonesia, as until now around 1200 tons per year are needed for the treatment of infections.

Amoxicillin can be synthesized from activated 6-aminopenicillanic acid (6-APA) and activated D-4-Hydroxyphenylglycine (Dane Salt). This chemical synthesis produces waste that needs to be handled for the process to be efficient and environmentally friendly. Another way of synthesis of amoxicillin is by using the enzymatic approach. Amoxicillin is synthesized from p-hydroxyphenyl glycine methyl ester (PHPGME) and 6-aminopenicillanic acid (6-APA) with the catalyst Penicillin G Acylase.

Given the importance of the production of pharmaceutical grade Amoxicillin that efficient and environmentally friendly, it is necessary to purify Amoxicillin with a green technology approach.

ABSTRACT OF INVITED PRESENTER

Anti-Inflammatory Activity Of Phytochemicals From *Alphonsea elliptica* (Annonaceae)

Juriyati Jalil[1]*, Ali Attiq[1,2], And Khairana Husain[1]

[1]Drug and Herbal Research Centre, Faculty of Pharmacy, Universiti Kebangsaan Malaysia,
Jalan Raja Muda Abdul Aziz, 50300 Kuala Lumpur, Malaysia
[2]Faculty of Pharmacy, MAHSA University,
Bandar Saujana Putra, 42610 Jenjarom, Selangor, Malaysia
*Email: juriyatijalil@ukm.edu.my

Abstract

Alphonsea elliptica belongs to the plant family Annonaceae, locally known as 'pisang-pisang'. This study was carried out to isolate and identify the chemical constituents present in the leaves of *A. elliptica* using various chromatographic and spectroscopic techniques, as well as to determine their inhibitory effects on prostaglandin E_2 (PGE_2) production in lipopolysaccharide (LPS)-induced human whole blood using radioimmunoassay (RIA). Twelve compounds (**1**-**12**) were isolated and identified using spectroscopic techniques (MS, 1D and 2D-NMR) and comparison with published data. Eight compounds gave strong inhibitory effect of more than 70% on PGE_2 production at 10 µg/mL. Orientin (**3**), exhibited the highest inhibition of 78.07% with IC_{50} of 10.78 µM, followed by isoorientin (**4**) and myricetin (**7**) with IC_{50} of 12.45 and 13.89 µM, respectively. Meanwhile, the lowest inhibitory activity was showed by caryophyllene oxide (**9**) with IC_{50} of 54.12 µM. The assay was determined based on indomethacin as positive control having IC_{50} of 8.1 µM. The results indicate that compounds **3**, **4** and **7** possess promising potent anti-inflammatory properties.

Keywords: *Alphonsea elliptica*

Marantodes pumilum (Blume) Kuntze As A Potential Herbal Remedy For Gout

Jamia Azdina Jamal[1], Eldiza Puji Rahmi[2], Nor-Ashila Aladdin[1], Endang Kumolosasi[1], Khairana Husain[1] And Juriyati Jalil[1]

[1]Drug and Herbal Research Centre, Faculty of Pharmacy, Universiti Kebangsaan Malaysia, Malaysia
[2]Faculty of Medicine, Universitas Pembangunan Veteran Jakarta, Indonesia
Email: jamia@ukm.edu.my

Abstract

Marantodes pumilum (MP) is traditionally used for "sickness in the bones". The extract was reported to inhibit xanthine oxidase (XO) activity *in vitro*. XO catalyzes oxidation of hypoxanthine to xanthine and xanthine to uric acid. Gout occurs due to the deposition of uric acid crystals in tissues, tendons and joints, causing inflammatory response.
Objective: This study was aimed to evaluate the anti-hyperuricemic and anti-inflammatory effects of *M. pumilum*. Ethanol (80%) extracts of leaves and roots of three MP varieties, *viz. alata* (MPA), *pumila* (MPP) and *lanceolata* (MPL), were screened for anti-hyperuricemic and anti-inflammatory activities using *in vitro* assays. The active extracts were further evaluated *in vivo* using hyperuricemic rat model induced by potassium oxonate and inflamed rat knee joint induced by MSU crystals. Quantitative phytochemical analysis using validated HPLC was performed. The results revealed that MPP leaf extract gave the highest XO inhibition. Oral administration of the leaf extract (200 mg/kg) significantly reduced serum uric acid level in hyperuricemic rats, as effective as allopurinol. The extract also inhibited liver XO activity. *In vitro* anti-inflammatory assay showed that MPP root extract inhibited secretion of pro-inflammatory cytokines and prostaglandin (PGE2) in human peripheral blood mononuclear cells. Oral administration of the root extract (200 mg/kg) significantly decreased the cytokines and PGE2 levels in rat's synovial fluid, as effective as indomethacin. The MPP extracts showed presence of myricetin, quercetin and kaempferol. The anti-hyperuricemic and anti-inflammatory effects of the leaves and roots indicated that MPP may be a promising herbal remedy for gout.

Keywords: *Marantodes pumilum*, anti-hyperuricemic, anti-inflammatory, xanthine oxidase, gout

Gynura procumbens Inhibits TNF-A-Induced MCP-1, ICAM-1 And VCAM-1 In Human Endothelial Cells

Tan Jiah Ning[1], Zakiah Jubri[2], Ibrahim Jantan[3], Khairana Husain[1], Norsyahida Mohd Fauzi[1]*

[1]Drug and Herbal Research Centre, Faculty of Pharmacy, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia.
[2]Department of Biochemistry, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia
[3]Institute of System Biology (INBIOSIS), Universiti Kebangsaan Malaysia, Selangor, Malaysia
*Email: drnorsyahida@ukm.edu.my

Abstract

Objective: This study aimed to investigate the effects of hydroethanolic extract of Gynura procumbens leaves on tumor necrosis factor-alpha (TNF-α)-induced production of a chemokine and expression of adhesion molecules in human umbilical vein endothelial cells.
Method: The effect of Gynura procumbens extract on TNF-α-induced monocyte chemoattractant protein -1 (MCP-1) was determined by ELISA. The effect of Gynura procumbens extract on TNF-α-induced protein expression of intercellular adhesion molecule-1 (ICAM-1) and vascular cell adhesion molecule-1 (VCAM-1) were determined by western blotting.
Result: All selected concentrations of Gynura procumbens significantly inhibited the production of TNF-α- induced MCP-1 compared to negative control ($p < 0.05$). In addition, TNF-α-induced ICAM-1 and VCAM-1 were significantly inhibited by Gynura procumbens (20, 40, 60 ug/ml) in a concentration dependent manner ($p < 0.0001$).
Conclusion: Altogether, results from this study demonstrated that Gynura procumbens may inhibit a chemoattractant protein and reduce expression of adhesion molecules. This study has implicated Gynura procumbens as a potential anti-inflammatory agent particularly for vascular inflammation.

Keywords: Gynura procumbens, chemoattractant, adhesion molecule.

Effect Of Epigallocatechin Gallate On Cadmium-Induced Changes In Spermatogenesis In Male Sprague Dawley Rats

Dr. S. Parasuraman*, Lam Chew Hui

Department of Pharmacology, Faculty of Pharmacy, AIMST University, Malaysia

Abstract

Objective: To study the effect of epigallocatechin gallate (EGCG) on cadmium-induced changes in spermatogenesis of male Sprague Dawley (SD) rats
Methods: The 36 male Sprague Dawley rats were divided in to six groups *viz*, control, cadmium chloride (5mg/kg), vitamin C (200 mg/kg), EGCG (50 mg/kg), vitamin C (200 mg/kg) and cadmium (5 mg/kg), and EGCG (50 mg/kg) and cadmium chloride (5 mg/kg) respectively. All the animals were administered with the respective assigned treatment by intraperitoneal route for 28 days. During the study, body weights changes were monitored at weekly intervals. At the end of the study, the blood samples of the rats were collected for biochemical analysis. Later, the rats were subjected to bilateral orchidectomy; sperm was collected from cauda epididymis for microscopic examination.
Results: The animal treated with cadmium chloride and EGCG + cadmium chloride was showed a significant reduction in body weight, however, vitamin C prevented cadmium chloride-induced changes body weight. The rats treated with cadmium chloride + EGCG showed a decrease in the number of spermatozoa whereas vitamin C + cadmium chloride did not show any significant changes in number of spermatozoa when compared with control.
Conclusion: EGCG failed to prevent cadmium chloride-induced changes in spermatogenesis of male SD rats but showed prevention in biochemical changes induced by cadmium chloride. Whereas, vitamin C has ameliorative effects on cadmium chloride induced changes in the biochemical parameter and spermatogenesis.

Key words: Cadmium chloride, EGCG, vitamin C, biochemical parameter, spermatogenesis

In Vitro Anti-Allergic Activity Of Selected Medicinal Plants In Malaysia

Khairana Husain*, Zahirah Abd Rani, Endang Kumolosasi, Malina Jasamai, Jamia Azdina Jamal & Juriyati Jalil

Drug & Herbal Research Centre, Faculty of Pharmacy, University Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, 50300 Kuala Lumpur, Malaysia
*Email: khairana@ukm.edu.my

Abstract

Objective: Nowadays, the search for new leads from natural resources especially from plants has become demanding and challenging due to their therapeutic properties. Malaysia as a biodiversity country endowed 15,000 species of flowering plants and trees which will provide a great sources of potential drugs. *Moringa oleifera* Lam., *Phyllanthus amarus* Schumach. & Thonn. and *Anaxagorea javanica* Blume are well-known plants for their medicinal properties such as anti-inflammation, antioxidant, antimicrobial and anticancer but none have been reported on their anti-allergic activity. In this paper, we will discuss the anti-allergic activity of *M. oleifera*, *P. amarus* and *A. javanica* extracts.
Methods: The anti-allergic activity of *M. oleifera* (leaves, seed and pod crude extracts), *P. amarus* (whole plants), *A. javanica* (leaves, bark) and ketotifen fumarate as positive control were studied by evaluating their inhibitory activities on β-hexosaminidase and histamine release from RBL-2H3 cells line.
Results: The inhibitory activity on mast cell degranulation of *P. amarus* extract on beta-hexosaminidase activity was more significant than its inhibitory activity on beta-hexosaminidase release while the extract *P. amarus* also observed did not inhibit histamine release. Whereas, all three parts of *M. oleifera* inhibited the release of β-hexosaminidase and histamine with *M. oleifera* leaves (IC_{50}:7.17 ± 1.69 µg/mL) exhibited the higher significant activity compared to ketotifen fumarate (IC_{50}:15.86 ± 1.10 µg/mL) while results for the extract of *A. javanica* is still ongoing. **Conclusions:** The study concludes that *P. amarus* did not inhibit mast cell degranulation but exhibit weak anti-histamine activity by binding on the H1 receptor while *M. oleifera* potentially has an anti-allergic activity by binding early phases of allergic reactions.

Keywords: *Moringa oleifera*, *Phyllanthus amarus*, *Anaxagorea javanica*, Anti-allergic, RBL-2H3, Histamine, Beta-hexosaminidase.

Characterisation Of 6-Gingerol Binding To 5-HT3R And Its Effects On Nicotine Addiction And Withdrawal

Nor Syafinaz Yaakob*, Muhammad Harith Zulkifli, Praveena Viswenaden, Lam Kok Wai, Norazrina Azmi, Malina Jasamai, Syaratul Dalina Yusoff, Fhataheya Buang

Drug and Herbal Research Centre, Faculty of Pharmacy, Universiti Kebangsaan Malaysia,
Jalan Raja Muda Abdul Aziz, Kuala Lumpur, Malaysia.
*Email: nsy@ukm.edu.my

Abstract

Objective: This study explores possibility of using the natural compound, 6-gingerol which is as a 5-hydroxytryptamine (serotonin) subtype 3 receptor (5-HT_3R) antagonist for treatment of nicotine abuse by understanding it at *in silico*, molecular and *in vivo* levels.
Method: Homology models of 5-HT_3A (homopentamer), 5-HT_3AB and 5-HT_3AC (heteropentamers) were built and validated followed by docking and molecular dynamic simulation of nicotine and 6-gingerol at the receptor orthosteric site. Radioligand binding assay was done to compare the *in vitro* binding properties of nicotine and 6-gingerol at 5-HT_3RA on HEK293 membrane. Effect of 6-gingerol in alleviating nicotine rewarding effect was assessed using conditioned place preference test (CPP) method while nicotine withdrawal depressive behaviour was assessed using forced swim test (FST).
Result: *In silico* study showed that the binding energy of 6-gingerol (-30.5 kcal/mol) at the orthosteric site is similar to nicotine (-34.6 kcal/mol). Radioligand binding assay showed that 6-gingerol (K_i = 10.81 µM) has higher affinity to the receptor than nicotine (K_i = 66.33 µM). Nicotine rewarding effect was significantly reversed with different doses of 6-gingerol (70, 100, 130 mg/kg). In FST, immobility time was also significantly reduced with dose-response relationship observed, which represents improvement from depressive-like withdrawal symptoms.
Conclusion: Our current findings suggest that at molecular level, 6-gingerol may displace nicotine binding at 5-HT_3R. *In vivo* findings also show positive trends of 6-gingerol efficacy in treating nicotine addiction and withdrawal. These findings altogether reveal potential of 6-gingerol as an adjunct therapy for smoking cessation, however development of an appropriate formulation is warranted.

Keywords: gingerol, serotonin, smoking, nicotine, addiction, withdrawal

Dengue Infection: Preventive Measures And Potential Treatments

Malina Jasamai[1], Yap Wei Boon[2], Aurapa Sakulpanich[3] And Azmath Jaleel[4]

[1]Drugs & Herbal Research Centre, Faculty of Pharmacy, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, 50300, Kuala Lumpur, Malaysia
[2]Program of Biomedical Sciences, Center of Health and Applied Sciences, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abd Aziz, 50300 Kuala Lumpur, Malaysia
[3]Division of Pharmaceutical Sciences, Faculty of Pharmacy, Thammasat University, Phaholyothin Road, Klong Luang, Rangsit, Prathumthani 12121 Thailand
[4]School of Earth & Ocean Sciences, Cardiff University, Main Building, Park Place, Cardiff CF10 3AT United Kingdom
*Email: malina@ukm.edu.my

Abstract

Objective: Currently, treatments for dengue infection are only symptomatic as no antiviral agents nor vaccines are available to combat this virus. This paper reports about vector controls which include mechanical, chemical and biological controls and genetic modifications of *Aedes* mosquitoes. Different approaches in developing vaccines and antiviral agents, surveillance and supportive therapy were also discussed.
Methods: A literature search was carried out on Medline and Scopus using a combination of the following sets of keywords (1) prevention OR vaccine OR monoclonal antibodies OR antiviral OR supportive therapy AND (2) dengue virus.
Results: Chemical control is achieved either by using synthetic or natural insecticides whereas in biological control, bacteria, fungi and larvivorous fish are utilised to reduce the vector population. Genes of mosquitoes are also explored to produce progenies which are sterile with low survival ability. Various approaches have been used towards producing vaccines for dengue. These include live attenuated, inactivated, recombinant subunit, nucleic acid and virus-like particles vaccines. Monoclonal antibodies are widely researched on to equip the host defense mechanism against the dengue virus. Deeper understanding of the virus replication cycle warrants the development of antiviral agents which target viral proteins vital for the replication process. Bioactive compounds are also utilised in the development of antiviral agents. The importance of surveillance and supportive therapy are also discussed.
Conclusion: Information gathered from this study is useful as a source of reference for scientists working on research related to dengue virus or *Aedes* mosquitoes.

Keywords: dengue virus, prevention, vaccine, monoclonal antibodies, antiviral, supportive therapy

ABSTRACTS OF ORAL PRESENTATION

The Effect Of Extraction Methods Towards Antioxidant And Antimicrobial Activity Of *Vernonia amygdalina* Delile. Leaves

Urip Harahap[1*], Aminah Dalimunthe[1], Triana Hertiani[2], Nasri[3], Denny Satria[3]

[1]Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara, Jl. Tri Dharma No.5, Kampus USU, Medan, Sumatera Utara, Indonesia 20155.
[2]Department of Pharmaceutical Biology, Faculty of Pharmacy, Universitas Gadjah Mada, Jl. Sekip Utara, Yogyakarta, 55281.
[3]Department of Pharmaceutical Biology, Faculty of Pharmacy, Universitas Sumatera Utara, Jl. Tri Dharma No.5, Kampus USU, Medan, Sumatera Utara, Indonesia 20155.
[*]Email: urip@usu.ac.id

Abstract

Objective: *Vernonia amygdalina* Delile. (Asteraceae) is used in traditional medicine to treat diabetes mellitus and some research provides its activity to treat infections and breast cancer. The aim of this study was to determine the effect of extraction methods of *Vernonia amygdalina* Delile. Leaves towards their antioxidant and antimicrobial activities.
Method: Extract was prepared using ethanol 100% with percolation and soxhletation methods. Antioxidant activity was determined with 1,1-diphenyl-2-picrylhydrazyl (DPPH) method. Total flavonoid and total phenolic content were determination with colorimetric methods. Antimicrobial activity was determined using disc diffusion method towards *Eschericia coli* ATCC 25922; *Staphylococcus aureus* ATCC 6538 and *Candida albicans* ATCC 10231.
Results: Antioxidant activity from DPPH assay measured as IC_{50} was 46.79 ± 0.98 µg/mL and 82.76 ± 1.03 µg/mL. Ethanol extract (EE) was found to contain high levels of phenolic (116.31 ± 0.48 mg GAE/g and 85.09 ± 0.76 mg GAE/g), total flavonoid (19.88 ± 0.57 mg QE/g and 15.56 ± 0.39 mg QE/g). Antibacterial activity of EE at concentration 50 mg/mL towards *Eschericia coli* ATCC 25922 were showed inhibitory zone 16.33 ± 0.09 mm and 13.67 ± 0.26 mm. *Staphylococcus aureus* ATCC 6538 16.90 ± 0.06 mm and 14.37 ± 0.12 mm. *Candida albicans* ATCC 10231 12.47 ± 0.03 mm and 11.70 ± 0.06 mm
Conclusion: The results reveal that extraction methods have important role in antioxidant and antimicrobial activity of *Vernonia amygdalina* Delile. Leaves.
Key words: *Vernonia amygdalina* Delile. Leaves, percolation, soxhletation, antioxidant, antimicrobial.

Investigation Of Angiotensin-Converting Enzyme Inhibitory Effects Of Indonesian Traditional Medicine: An In-Vivo Study

Aprilita Rina Yanti Eff*, Sri Teguh Rahayu, And Hermanus Ehe Hurit

Departement of Pharmacy Faculty of Health Sciences, Esa Unggul University
*Email: aprilita.rinayanti@esaunggul.ac.id

Abstract

The renin-angiotensin-aldosterone system (RAAS) is a significant factor in maintaining arterial blood pressure. The primary function of RAAS is to regulate arterial blood pressure and electrolyte and water balance. Several Indonesian plants in the form of herbal medicine have been proven in vitro to be ACE inhibitors.
Objective: This study aims to assess ACE inhibitory effects of antihypertensive jamu on rats (*Rattus novergicus*), which are exposed to 10% fructose for 10 weeks
Method: 30 rats were divided into 6 groups, namely group I were normal controls given a standard diet and aquadest drinks. Group II to VI rats was hypertensive by giving a drink containing 10% fructose for 10 weeks. Group II were negative control, given a standard diet and 10% fructose solution. Captopril was given to group III and jamu doses 1, 2, and 3 to groups IV to VI starting on day 57 to 71. Blood pressure measurements were taken every week before giving fructose until the last period of treatment. On day 72, rats were sacrificed, and plasma was taken to measure ACE activity using an ELISA reader. The data obtained were analyzed statistically using one-way ANOVA
Result: There was a significant difference between the herbal group and the negative control group ($p > 0.05$) and there was no significant difference between the 2 and 3 dose herbal groups with captopril ($p < 0.05$)
Conclusion: Antihypertensive jamu has activity as ACE inhibitors in- vivo

Keywords: Antihypertensive, ACE inhibitor, jamu

The Effect Of Sgot-Sgpt Levels Hepar After Giving Extract Ethanol Pericarp Mangosteen (*Garcinia mangostana* L.) And A-Mangosten In Hyperglicemic Rats

Hasriyani [*,1], R.A. Oetari[2], Adi Prayitno[3]

[1] Department of Pharmacy, Faculty of Healthy, Muhammadiyah Kudus University, Indonesia 57127
[2] Department of Pharmacy, Faculty of Pharmacy, Setia Budi University Surakarta, Indonesia 57127
[3] Department of Medical, Faculty of Medical, Sebelas Maret University Surakarta, Indonesia, 57126
*Email: hasriyani@umkudus.ac.id

Abstract

Objective: The study aimed to isolate and identification secondary metabolite from pericarp *Garcinia mangostana* Linn. and determine the antihyperglycemic effect the reduction of SGOT-SGPT levels after giving ethanol extracts of pericarp mangosteen and α-mangostin in *Streptozotocin-nicotinamide* (STZ-Na) induced rats.
Methods: The first step of this research was maceration of sample using alcohol 70% solvent. The separation and purification ofcompounds using Vacuum Liquid Chromatography (VLC), Radial Chromatography (RC). The purity of isolate was analyzed by thin layer chromatography (TLC) and melting point. Compounds identified using spectroscopi IR, NMR-1D (^{1}H, ^{13}C-NMR and DEPT) and NMR 2-D (HMQC and HMBC). This study was carried out by divided randomly animal experiment into 12 group, where 6 groups were treated with ethanol extract of pericarp mangosteen and other 6 groups were treated with α-mangostin isolate for 28 days. Blood glucose levels, SGOT-SGPT levels were measured for the administration of α-mangostin extracts and compounds.
Results: The compound has melting point at 165-167^{o}C. The result showed isolate 2 was α-mangostin. The results showed that ethanol extract of pericarp mangosteen test group (100 mg/200 g BW) and α-mangostin compounds (0.128 mg/200 g BW) at dose III decreased blood glucose levels which were comparable to decreases in SGOT-SGPT levels. The dose of α-mangostin 0.128 mg/200 g BW has much better effectiveness compared to the treatment of other extracts and isolates.
Conclusion: The secondary metabolite found in pericarp *Garcinia mangostana* Linn. is α-mangostin and dose of α-mangostin 0.128 mg/200 g BW more effective than other doses.

Keywords: Pericarp *Garcinia mangostana* Linn., α-mangostin, diabetes mellitus, SGOT-SGPT.

Utilization Of Senggani Leaves Ethanol Extract As Antibacterial

Elisa Putri[1*], Yuni Trisnawita[2], Ullya Arzha[3]

[1,2,3]Program Studi Farmasi, Universitas Sains Cut Nyak Dhien
*Email : elisa.putrisyah@gmail.com

Abstract

Objective: The purpose of this study is to find out the antibacterial ability of ethanol extract of senggani leaves against the bacteria Streptococcus mutants
Method: Antibacterial testing using disc diffusion method. Phytochemical screening results from ethanol extract senggani leaves showed positive containing tannin, flavonoid and saponin compounds.
Result: Result of the resistance zone of antibacterial activity of ethanol extract senggani leaves against streptococcus mutant bacteria at a concentration of 25% of 8.82 mm, 50% concentration of 9.16 mm, 75% concentration of 9.72 mm, 100% concentration of 12.47 mm, chloramphenicol of 26.08 mm, and aquadest 0 mm. Anova's one way test resulted in a significance value of p 0,000>0,05 which means there is an influence of senggani leaves ethanol extract in inhibiting streptococcus mutant bacteria.
Conclusion: It can then be concluded that the optimum antibacterial activity of ethanol extract senggani leaves is found at a concentration of 100% of the slave zone of 12.47 mm including strong criteria.

Keywords: Dental caricature, Melastoma malabathricum L., Influence of extract concentration, Streptococcus mutants

Potential Antidiabetic Activities Of Akar Kuning (*Fibraurea tinctoria* Lour) Extract In Aloxan Induced Diabetic Rat

Supomo[1*], Eka Siswanto Syamsul[2], Hayatus Sa`adahR[3] , Kintoko[4], Hardi Astuti Witasari[5]

[1,2,3] Sekolah Tinggi Ilmu Kesehatan Samarinda
[4,5] Faculty of Pharmacy Ahmad Dahlan University Yogyakarta
*Email: fahmipomo@gmail.com

Abstract

Yellow root (Fibraurea tinctoria Lour) has been used as a medicine for dysentery, headaches, eye pain and diabetes medication.
Objective: This study aims to determine the antidiabetic activity of ethanol extract of yellow root against male white rats (Mus musculus).
Method: The experimental animals were grouped into 5 groups, each consisting of 3 male white rats. Group 1 is a negative control, namely diabetic rats given 0.3% NaCMC, group 5 is positive control diabetic rats given 0.65 mg / KgBB glibenclamide, groups 2, 3, 4 are diabetic rats given ethanol extract of yellow root with doses of 50, 100, and 200 mg / kg. Preliminary test by comparing the group of mice given alloxan and those not (normal group). Before being treated, the rats were induced with alloxan monohydrate 175 mg / kgBB intraperitonial. The ethanol extract was given once a day for 15 days. The parameters observed were blood sugar levels.
Result: The results showed that giving yellow root ethanol extract significantly reduced blood sugar levels ($p < 0.05$) in diabetic rats. The dose of 100 mg / KgBB is an effective dose for reducing blood glucose levels in white rats.

Keyword: Yellow Root, Blood Glucose. Alloxan.

Standardization Of Two Varieties *Orthosiphon aristatus* Blume Miq; Potential Medicinal Plants In Indonesia

Fahrauk Faramayuda*, Totik Sri Mariani, Elfahmi Elfahmi, Sukrasno Sukrasno

Faculty of Pharmacy UNJANI
*Email: ramayuda_f@yahoo.com

Abstract

Objective: Orthosiphon aristatus are plants that have the potential to be developed into traditional medicinal products and accompanying therapy in the treatment of a disease. Based on the flowers' macroscopic profile, O. aristatus are divided into three varieties, namely purple, white-purple, and white. The different varieties of O. aristatus allow for differences in their phytochemical profiles. The main ingredients in O. aristatus are sinensetin, rosmarinic acid, and eupatorin. In order for the consistency of the quality of the O. aristatus to be fair, standardization efforts need to be made in order to choose the right variety., it is necessary to make standardization efforts in order to choose the right variety.
Method: Extraction was carried out on the stems and leaves of the purple and white-purple varieties of O. aristatus by the maceration method using ethanol as a solvent. Standardization parameters to be tested were determining the levels of sinensetin, rosmarinic acid, and eupatorin by using thin-layer chromatography densitometry on two varieties of O. aristatus.
Result: The highest levels of sinensetin and rosmarinic acid with a value of 0.53% w/w and 1.32% w/w were found in purple variety O. aristatus. The highest level of eupatorin is 0.88% w/w in the ethanol extract of white-purple varieties of O. aristatus. The main secondary metabolites in the two varieties of O. aristatus were more significant in the leaves than in the stems.
Conclusion: The levels of sinensetin and rosmarinic acid in purple varieties of O. aristatus are greater than white-purple varieties, but the levels of eupatorin are higher in white-purple varieties. This study provides new information regarding the differences in levels of secondary metabolites between purple and white-purple varieties of O. aristatus.
Keywords: the phytochemical profile, purple varieties of O. aristatus, white-purple varieties, levels of active compounds, TLC-densitometry.

Keywords: the phytochemical profile, purple varieties of O. aristatus, white-purple varieties, levels of active compounds, TLC-densitometry

The Effect of *Plectranthus amboinicus*, (Lour.) Spreng Leaves Ethanol Extract on Uterus Weight, Estrous Cycle and Bone Density in An Ovariectomized Rats Model

Poppy Anjelisa Zaitun Hasibuan*, Marianne, Suharyanisa

Departement of Pharmacology Pharmacy, Faculty of Pharmacy, Universitas Sumatera Utara, Medan Indonesia
*Email: poppyanjelisa@usu.ac.id

Abstract

Objective: to observe the effect of ethanol extracts of the *Plectranthus amboinicus* (Lour.) Spreng. (EEPA) leaves on the uterus weight, estrous cycle and bone density of ovariectomized rat as a menopausal models.
Method: The extraction of *Plectranthus amboinicus* (Lour.) Spreng. leaves was carried out by maceration method using ethanol 96%. The phytochemical screening was done to found the containing of extract. Ovariectomized rats were used as an menopause model and were treated orally with EEPA 14 days after surgery. The study was carried out on 30 female rats which were divided into 6 groups: group 1 (normal control), group 2 (negative control) given CMC Na 0.5%, group 3 (positive control) given 17-ß estradiole dose of 0.036 mg/200 g BW, group 4, 5, 6 given EEPA with doses of 30, 60, 90 mg/kg BW. Estrogenic activity was assessed by vaginal cornification, uterine weight, and bone density.
Result: EEPA contain tannin, saponin, triterpenoid/steroid and flavonoid. The EEPA was able to increase the weight of the uterus and improve the estrous cycle by extend the estrous phase. Bone density increase in line with increasing of EEPA dose in ovariectomized rats.
Conclusion: EEPA has phytoestrogenic activity on ovariectomized rats model.

Keywords: menopause, phytoestrogens, bone density, estrous cycle, uterine weight

The Acitivity Of Kersen Flower Extract (*Muntingia calabura* L) As Antioxidant And Inhibitor Of Xantin Oxidase Enzyme Against Uric Acid In Vitro

St. Maryam[1], Masdiana Tahir[2*], Nurul Ismi Alifiah[3] and Fina Fitria Sari[4]

[1,2,3,4] Pharmacy Faculty, University of Muslim Indonesia
*Email: masdiana.tahir@umi.ac.id

Abstract

Objective: This study examined the antioxidant activity and inhibitory activity of kersen flower extract on the xanthine oxidase enzyme in vitro
Method: Extraction was carried out using maceration method, where antioxidant activity was measured using UV-Vis spectrophotometry at a wavelength of 515 nm with gallic acid as the comparison. Whereas, the xantin oxidase inhibitory activity was tested using a UV-Vis spectrophotometer at a wavelength of 266.40 nm with a pH of 7.5 and an incubation temperature of 30°C with allopurinol as the comparison.
Result: The results showed that the methanol extract of kersen flower (Muntingia calabura L.) had a very strong antioxidant activity with an IC_{50} value of 9,271 µg / mL, and it successfully inhibited the xanthine oxidase activity in vitro with an IC_{50} value of 58.662 µg / mL.
Conclusion: kersen flower (Muntingia calabura L.) had a very strong antioxidant activity and it successfully inhibited the xanthine oxidase activity

Keywords: Kersen Flower Extract (*Muntingia calabura* L), Antioxidant, Xantin Oxidase Enzyme

Identification Content Of Medicinal Chemicals (Paracetamol And Prednisone) In Traditional Herbal Medicine

Iqbal Kamar[1*], Fazrina Zahara[2], Elisa Putri[3]

[1,2,3]Faculty of Pharmacy, Universitas Sains Cut Nyak Dhien
*Email: iqbalkamar11@gmail.com

Abstract

Objective: This study aims to identify the chemical content of paracetamol and prednisone drugs in uric acid herbal medicine found in Langsa City, selected as many as four types of herbal samples.
Method: To determine the paracetamol and prenidsone content in herbal medicine, in this reaserch used a thin layer chromatography (TLC) method, which was accompanied by an organoleptic test covering shape, color, aroma, and taste.
Result: Based on the results of the thin layer chromatography test, the herbal sample (A) had an Rf value of 0.30 with purple spots, and the herbal samples (D) had an Rf value of 0.32 with purple spots. In the herbal medicine sample (C) there are spots that have an Rf value of 0.35 with purple spots. Furthermore, in the herbal medicine sample (B), there were no spots that were parallel or marked with the comparison standards for paracetamol and prednisone.
Conclusion: The analysis showed that out of the four samples of uric acid herbal medicine tested, one tested positive for paracetamol, namely the sample © herbal medicine, sample (A) and sample (D) were positive for prednisone, while the sample herbal medicine (B) was negative for containing medicinal chemicals (paracetamol and prednisone).

Keywords: Medicinal, chemicals, herbal, medicine

Expression Of P16INK4 In The Brain Of Animal Model Of D-Galactose-Induced Aging

Dwi Rita Anggraini[1*], Muhammad Ichwan[2], Yetty Machrina[3], Syafruddin Ilyas[4]

[1]Department of Anatomy, Faculty of Medicine, Universitas Sumatera Utara
[2]Department of Pharmacology and Threrapeutic, Faculty of medicine, Universitas Sumatera Utara
[3]Department of Physiology, Faculty of medicine, Universitas Sumatera Utara
[4]Department of Biologi, Faculty of Mathematics and Natural Sciences, Universitas Sumatera Utara
*Email: dwirita@usu.ac.id

Abstract

Objective: Aging is a complex biological process implicated alteration at the molecular and cellular levels, not only due to chronological age but also to be accelerated by environmental factors associated with oxidative stress. The free radicals are the result of normal metabolic processes involved Reactive Oxygen Species (ROS) and Reactive Nitrogen Species (RNS), its highly reactive and cause dysfunction and cell death. Biomarkers of aging which play a role such as senescence-associated β-galactosidase (Saβ-gal), cell cycle inhibitors: including p16INK4a, p21CIP1, and p27. The limitations of studies as well as ethical problems with human subjects, aging animal models of D-galactosa-induced aging had useful for research tools. Due to the practical conditions of study, such as duration and cost, accelerated aging models are comonly used. We aimed to create aging-animal model of D-galactosa-induced.
Method: The experimental design, post test only control group, mice were divided into 5 groups (n=5), i.e., KO: Normal control (age 3 months), K1: aging mice control (age 24 months), P1, P2, and P3 age 3 months (100mg/kg, 200mg/kg, and 400mg/kg of D-galactosa, sub cutan injected) for 8 weeks. The blood and brain tissue were collected. The p16INK4a expression of brain tissue was evaluated by immunohistochemistry test.
Results: The results demonstrated that P1 (D-galactosa induced, dose 100mg/kgbw) similarly to K1 (aging-mice control) group with score 3 (strong intensity and area of 90%).
Conclusion: Injection of D- galactose at a dose of 100 mg kgBB for 8 weeks is a suitable animal model for aging models.

Key words: animal model, D-galactosa, aging, p16INK4a

Antioxidant Activity And Characterization Of Dichlormetane Fraction, Ethyl Acetate And Ethanol Extract Of *Stelechocarpus burahol* Hook.F. & Thomson) Leaves By Using Bcb (*Beta Caroten Bleaching Assay*), Frap (*Ferric Reducing Antioxidant Power*) Method And Partial Characterization

Diniatik[1], Nunuk Aries Nurulita[2]

[1,2]Faculty of Pharmacy, University of Muhammadiyah Purwokerto, Jl. KH. Ahmad Dahlan, Dukuhwaluh, Kembaran, Purwokerto 53182, Indonesia
*Email: diniatik@yahoo.com.au

Abstract

Objective: *Stelechocarpus burahol* Hook.f.& Thomson) is a native plant of Indonesia that has been used as a deodorant and gout medicine. The purpose of this study was to obtain complete information related to its antioxidant activity from dichlormethane, ethyl acetate fraction and ethanol extract. So that the data is increasingly conical so that it was obtained as an active fraction product. This research encouraged the purified extract products of *Stelechocarpus burahol* leaves contained much phenolic compounds that make it possible fractionate and characterize to get an active fraction as antioxidant. Ethanol extract of *Stelechocarpus burahol* leaves contain kaempferol and its derivatives as antihyperuricemia.
Method: The antioxidant activity that has been reported is as DPPH radical scavenging activity method, showed that the ethyl acetate fraction has greater activity that ethanol extract. This antioxidant activity needs to be confirmed by other mechanisms using BCB (Beta Carotene Bleaching Assay) and FRAP (Ferric Reducing Antioxidant Power) using spectrophotometry UV-Vis. By calculating IC_{50} value (represented based on concentration of the sample needed to inhibit 50% concentration which is obtained from the linear regression).
Result:). The results showed that the IC_{50} value as an antioxidant by the BCB method of quercetin was greater that the ethanol extract, dichlormethane fraction, ethyl acetate fraction that was equal to 63.802 µg/ml; 167.037 µg/ml; 213.571 µg/ml; 526.415 µg/ml. IC_{50} value measured by the FRAP method showed that ascorbic acid is greater than the ethyl acetate fraction, ethanol extract and dichlormethane fraction which is 6.66 µg/ml; 13.875 µg/ml; 16.132 µg/ml (Very strong). In ethanol extract and ethyl acetate fraction there are flavonol compounds that have OH at C numbers 5, 7 and 4'.
Conclusion: Ethanol extract, dichlormethane fraction, ethyl acetate fraction *Stelechocarpus burahol* Hook.f.& Thomson) have antioxidant activity that measured by BCB and FRAP method. The active compound is flavonol that have OH at C numbers 5, 7 and 4'.

Keywords: *Stelechocarpus burahol*, ethyl acetate fraction, dichlormethane fraction, flavonol, antioxidants, FRAP, BCB

Optimizing Dose And Lipid Lowering Effect Of Beetroot (Beta vulgaris, L) On Doxorubicin Induced Toxicity In Rat

Sony Eka Nugraha[1]*, Yuandani[2]

[1]Department of Pharmaceutical Biology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, 20155, Indonesia
[2]Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, 20155, Indonesia
*Email: sonyekanugraha@usu.ac.id

Abstract

Objective: This study was to finding out the protective minimum dose effects of beetroot ethanol extract (Beta vulgaris l) .) in doxorubicin-induced toxicity in rat by determining the lipid profile.
Method: Rats were induced by doxorubicin with an accumulative dose of 15 mg / kgBB for 15 days by giving doxorubicin 5 times in 1 week with a dose of 1 mg / kgBB intraperitonially, and beetroot extract were given for 15 days., at the Day 16th, animals were anesthetized and blood samples collected and determined the lipid profile of LDL, HDL, total cholesterol, and triglycerides.
Result: Beetroot showed protective activity on the lipid profile of rat in doxorubicin-induced toxicity. It showed that treatment at a dose of 50 mg / kg BW was a minimum dose that have significantly different to negative control group ($p<0.05$) in all parameters.
Conclusion: It concluded that beetroot ethanol extract had the protective activity of lipid profile values in rats that were induced by doxorubicin and it showed dose dependent.

Keywords: Beetroot, Doxorubicin, Lipid

Antioxidant Activity Of *Eriobotrya japonica* Lindl Fruit From Ethanol Extract By DPPH Method (1,1-Diphenyl-2-Picrylhydrazyl)

Masfria, Ginda Haro, Hafid Syahputra, Lisda Rimayani Nasution, Yade Metri Permata, Jennifer Connery, Annisa Rahmayani Manurung, Dina Ngurasinta Perangin Angin.

Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, North Sumatera, Indonesia
*Email: masfria@usu.ac.id

Abstract

Objective: *Eriobotrya japonica Lindl* is a plant that has economic potential in the North Sumatra region that can be used as functional food. This fruit is rich in several minerals and vitamins. The presence of vitamins and secondary metabolites in the *Eriobotrya* fruit can be used as a source of antioxidants that can inhibit free radicals. The purpose of this study was to test the antioxidant activity of the ethanol extract from *Eriobotrya* fruit using the DPPH (*1,1-diphenyl-2-picrylhydrazyl*) method.
Method: The method used to determine antioxidant activity using the DPPH method and the amount of antioxidant activity is indicated by the IC_{50} value. The IC_{50} value of the ethanol extract of *Eriobotrya* fruit was determined using UV-Vis spectrophotometry with various concentrations of 25, 50, 75 and 100 µg/ml. Vitamin C solution was used as positive control, while DPPH solution was used as negative control.
Result: The results of this study obtained the maximum wavelength of DPPH at 515.8 nm. The regression equation of the calibration curve is Y = 0.8979X + 0.6025 with a regression of 0.999. The results of the measurement of antioxidant activity showed the IC_{50} value of the ethanol extract of *Eriobotrya* fruit was 55 µg/ml.
Conclusion: *Eriobotrya* fruit ethanol extract has a high IC_{50} value as an antioxidant agent

Keywords: antioxidants, *Eriobotrya,* DPPH

Qualitative And Quantitative Analysis Of Chemical Compounds Of Herba Binara Ethanol Extract (Artemisia vulgaris L.)

Romauli Anna Teresia Marbun

Faculty of Pharmacy, Institut Kesehatan Medistra Lubuk Pakam, Indonesia
*Email: romaulimarbun63@gmail.com

Abstract

Objective: This study aims to analyze qualitatively and quantitatively the content of herbaceous ethanol extract binara
Method: Determination of total flavonoid levels of ethanol extract is carried out using UV-Visibel Spectrophotometry with raw citersetin. Qualitative and quantitative inspection using HPLC based on validation parameters namely linearity, accuracy, precision, LOD and LOQ. The use of LCMS is used to determine molecular formulas and molecular weight.
Results : The results showed that the extract contains kuersetin compounds, retention time of binara herb extract of 5.33 minutes, molecular weight of m/z compound 310.1547 with molecular formula compound C13H27NO5S and kuersetin levels in extracts with a concentration of 6.25 ppm at 7.14 µg/ml, 12.5 ppm at 13,419 µg/ml, 25.00 ppm at 23.7748 µg/ml, 50.00pp at 48.5467 µg/ml, and 100 ppm at 100.8619 µg/ml
Conclusion: Based on the results of the research conducted, it can be concluded that the extract of herbal binara contains kuersetin and the higher the concentration of extracts the greater the level of flavonoids with raw lysetin.

Keywords: Herba binara, kuersetin, flavonoids, HPLC, and LCMS

Computational Method Of Bioactive Compound From *Ficus religiosa* As Dietary Chemopreventive Agent

H.D. Syahputra[1], Masfria[12*] And P.A.Z. Hasibuan[3]

[1]Department of Pharmaceutical Chemistry, Faculty of Pharmacy.
[2]Department of Nanomedicine, Faculty of Pharmacy.
[3]Department of Pharmacology, Faculty of Pharmacy.
Universitas Sumatera Utara, Medan-20155, Indonesia.
*E-mail: masfria@usu.ac.id

Abstract

Objective : *Ficus reliosa* (*Moraceae*) has been used in traditional medicine to treat numerous ailments in central nervous system disorder, infectious disease, endocrine system, respiratory system, etc. The aims of this study were to evaluate phytosterol constituents that may serve as lead-drug such as 28-Isofucosterol, Stigmasterol, Sitosterol and Caempesterol towards their chemopreventive activity to increase *Nuclear receptor factor 2* (Nrf2) uptake bound by *Kelch-like Activating Protein* (Keap1).
Method : Structures were studied to evaluated it's respective and bioactivity using *Milliprot* followed by docking study with *Autodock Tools* as for macromolecule obtained from *Protein Data Bank* in 2FLU.pdb file name.
Results : Chemopreventive activity from Sitosterol, Stigmasterol, Caempesterol and 28-Isofucosterol in each respective bioactivity towards nuclear receptor target : 0.72; 0.74; 0.71; 0.91. Computational study performed by *Autodock Tools* against Keap1 target macromolecule covalent binding toward threonine 609 to obtain inhibtion result. As respective Inhibition constant obtained (pM) : 522.97; 286.75; 620.16; 369.55. Free energy obtained (kcal/mol) : -8.57; -13.02; -12.56; -12.87.
Conclusion : The results reveal from the study showed that phytosterol compound from *Ficus religiosa* proven to be useful as chemopreventive agent to promote anti oxidant activity through Nrf2 factor bound by Keap1.

Key words : *Ficus religiosa*, Chemopreventive, In-silico, Phytosterol

Scurrula Ferruginea Jack Danser Activities As A Sunscreen In Lotion Formulation

Iswani Marzuki [1], Rosnani Nasution[1]*, Muhammad Bahi[1]
Mariane Marianne[2]

[1]Department of Chemistry, Faculty of Mathematics and Natural Sciences, Universitas Syiah Kuala, Banda Aceh 23111, Indonesia;
[2]Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia, 20155
*Email: rosnani@unsyiah.ac.id

Abstract

Objective: The purpose of this study was to determine the sunscreen activity of the extract, subfraction, pure compound and lotion sunscreen and to determine the physical properties of the lotion.
Methods: In this study, all parts of the *Scurrula ferruginea* Jack Danser was extracted using ethanol 96%. The extract obtained was characterized by gas chromatography-mass spectrometry and separated by column chromatography. The extract was evaluated into the lotion. The extract, subfraction, pure compound and lotion was tested its sun protective factor (SPF) values. The SPF in vitro value was determined by UV spectrophotometer developed by Mansur method. The examination of the lotion is carried out on the sunscreen activity as well as the physical properties of the lotion is: pH, the power of spreadability, type emulsion, a viscosity and the power of adhesive.
Results: The results showed that the extract, subfraction, pure compound and lotion showed good activity as a sunscreen, this was indicated by the SPF value of the ethanol extract at a concentration of 2% to 12% ranging from 32.270 ± 0.227 to 38.171 ± 0.440, while the SPF value of the extract lotion ranged between 21.358 ± 0.098 to 34.665 ± 0.315. The SPF value of A-E subfraction ranged from 27.383 ± 0.407 to 34.719 ± 0.162, while the SPF value of A-E subfraction lotion ranged from 23.448 ± 0.147 to 32.039 ± 0.171. The SPF value of the pure compound SSF5-7 was 21.358 ± 0.011. The results of the physical properties test showed that the lotion type was O/W (oil in water), the pH of the extract lotion was 6.082-7.801, the viscosity of the lotion was 1977-4850 cP, the spreadability of the lotion was 4.40-6.25 cm and the adhesion power was 12.03-20.95 seconds. The physical properties of the lotion meet the standards set by SNI 1996. The results of the phytochemical test and GC-MS characterization, the pure SSF5-7 compound was suspected to be a caffeine compound.
Conclusion: It is concluded that extract and lotion sunscreen of *Scurrula ferruginea* Jack Danser plant extract have potential to protect the skin from UV Rays.

Keywords: *Scurrula ferruginea* Jack Danser, UV rays, SPF (Sun Protection Factor), Sunscreen, Lotion.

Antiulcer Activity Of Fucoidan From *Sargassum polycystum* Towards Rats-Induced With Ethanol

Vivi Asfianti[1*], Artha Yuliana Sianipar[1*]

[1]faculty Of Pharmacy And Health Sciences, University Of Sari Mutiara Indonesia
*Email: vivi.asfianti@yahoo.com

Abstract

Objective: Peptic ulcers occur due to an imbalance of aggression factors and defensive factors contained in the stomach. Brown seaweed is a potential marine product. *Sargassum polycystum* is one type of brown seaweed as a producer of fucoidan.
Method: The research method is experimental. This study aimed to determine the compounds isolated from *Sargassum polycystum* brown seaweed. To obtain the simplicity characteristics of *Sargassum polycystum* by methods determination of drying shrinkage, determination of yield and identification of functional groups by means of infrared spectrophotometry and the effect of fucoidan on ulcers.The fukoidan isolate was made into a suspension of 25, 50, 100 mg/KgBB and as a positive comparison of sucralfate and a negative comparator of Na-CMC.
Result: The results of the examination of the simplicia characteristics of *Sargassum polycystum* brown seaweed obtained 8.74% drying shrinkage and 4.016% yield of fukoidan isolation. The results of fukoidan identification by spectrophotometry FTIR showed the spectrum and absorption curve form identical to the fukoidan comparison standard. Ulcers are formed in the stomach was observed based on the results of the study found that the best therapy is fukoidan isolate dose 100 mg/KgBB.
Conclusion: Isolation from brown seaweed *Sargassum polycystum* containing fucoidan and has antiulcer activity

Keywords: Brown seaweed, *Sargassum polycystum*, fucoidan, antiulcer, ethanol

Formulation And Evaluation Of Making Ointments From Betel Leaf Extract (*Piper betle L)* For Wound Healing

Fazrina Zahara[1*], Elisa Putri[2], Iqbal Kamar[3]

[1,2,3]Program Studi Farmasi, Universitas Sains Cut Nyak Dhien
*Email : fazrina.zahara@gmail.com

Abstract

Objective: The purpose of this study was to determine the effect of ethanol extract ointment betel leaf (Piper Battle L) on injury medicine and determine the effective concentration for betel leaf ethanol extract ointment (Piper Betle L).
Method: This research uses experimental methods, by using 20 mice which were divided into 4 groups as test animals. Incision was made on the back using a sterile scalpel 1 cm long. Where in this reaserch there were four treatments, including 10% and 15% concentration of ethanol extract of betel leaf. Then for the Positive Control (+) 10% Povidone Iodine was used, while the negative control used alcohol.
Result: The skin incision wounds of mice which were treated with ethanol extract ointment of betel leaf (Piper betle L) were effective in healing cuts.Ointment with a concentration of 15% betel leaf is faster in the healing process of an incision than ointment containing 10% betel leaf extract.
Conclusion: Ointment containing betel leaf extract can accelerate the healing process of wounds, because the betel leaf content has antiseptic properties.

Keywords: Wound, Healing, Betel Leaf, Formulation, Evaluation

Formulation And Characterization Of Chloramphenicol Nanosuspension

Sumaiyah Sumaiyah, Srisanty Mariana Tambunan, Elsakristina Br Hutagalung

Department of Pharmaceutical Technology
*Email: sumaiyah7777@gmail.com

Abstract

Objective: The objectives of this study were to formulate chloramphenicol nanosuspension and determine the characteristics.
Method: Chloramphenicol nanosuspension was made by using precipitation method with variations in the concentration of PVP K-30 0.25 g; 0.5 g; and 0.75 g. Characterization of chloramphenicol nanosuspension included particle size measurement, organoleptic observation, pH, specific gravity, viscosity, zeta potential, functional group analysis used FT-IR and particle morphology used SEM.
Result: The result showed that the chloramphenicol nanosuspension with ratio chloramphenicol and PVP K-30 was 1:1 had an average particle size of 23 nm and experienced an increased in particle size during 4 weeks of storage. Organoleptic showed that the preparation did not change shape, color, and odor. The pH obtained was still in the pH range of 4.5 to 7.0. Specific weights obtained were 1.0357-1.0392 g/ml. Viscosity had an increased during 4 weeks storage. The potential zeta obtained was -6.3 mV. FT-IR resulted showed that there was no interaction between the material used in the preparation of chloramphenicol nanosuspension with pure chloramphenicol. The morphology of particle chloramphenicol nanosupension was non spherical form.
Conclusion: Chloramphenicol can be formulated in the dosage form nanosuspension.

Keywords: formulation, characterization, chloramphenicol, nanosuspension.

Combination of Polymer Ethyl Cellulosa and Chitosan for Curcumin Microencpsulation

Deni Rahmat, Sarah Angela Purnama, Novi Yantih, Yunahara Farida

Faculty of Pharmacy, Pancasila University
Srengseng Sawah, Jagakarsa, Jakarta selatan, 12640, Indonesia
*Email: mangnden78@yahoo.com

Abstract

Temulawak (Curcuma xanthorriza Roxb.) is one of the most widely used plants as raw material as a medicinal herbal because it has multifunctional properties with the main content of curcuminoids consisting of curcumin and desmetoxicurcumin.
Objective: This study aimed to evaluate curcumin microencapsulation. In this research, the combination of ethyl cellulose and chitosan polymers for curcumin microencapsulation, the release profile and mucoadhesive properties of the curcumin microcapsules were investigated.
Methode: Based on the results of the study, curcumin could be formulated into microcapsules using a combination of ethyl cellulose and chitosan polymers with the identification of the morphological form of the microcapsules showing almost spherical shape using SEM (*Scanning Electron Microscope*) and the results of particle size distribution of 281-361 µm. Chitosan with an optimal concentration of 2% was effective to increase the solubility of curcumin, and glyceril monostearate was visually proven to stabilize the solubility of curcumin.
Result: Based on the release profile obtained, the release system slowed sustained release and the results of the mucoadhesive study of gave better results than that of curcumin with the cumulative amount left in the mucous mucus by 55.04% for 3 hours.
Conclusion: Accordingly, the use of ethyl cellulose for sustaned released could be a promising tool for a simple method of curcumin microencapsulation.

Keywords: curcumin, ethyl cellulose, chitosan, microencapsulation

Cosmetic Spray Gel Formulation From Ethyl Acetate Fraction Turmeric Rhizome And Collagen From Catfish (*Pangasius hypopthalmus*) As Antiaging Treatment

Denia Pratiwi[1*], Yan Hendrika[2]

[1] D III Pharmaceutical And Food Analyst, Universitas Abdurrab
[2]S1 Pharmacy, Universitas Abdurrab
*Email: denia.pratiwi@univrab.ac.id

Abstract

Objective: Premature aging is the process of aging skin that it faster than time because there is oxidative damage caused by free radicals. This study aims to determine the antioxidant activity of the cosmeceuticals spray gel combination of turmeric rhizome fraction with catfish skin collagen. Curcumin compounds in turmeric are known to have high antioxidant activity to inhibit free radicals and the addition of collagen is intended to be able to provide intake in improving skin structure due to premature aging.
Method: The method used is this study was laboratory experimental, optimization of collagen extraction of catfish skin through acidic methods with variations in the immersion time and formulating the blanched ethyl acetate fraction combination of turmeric rhizome with collagen. The preparations are made into 8 formulas with various concentration. The preparations formed will be evaluated and tested for their antioxidant activity.
Result: The result obtained were the extraction of catfish skin collagen the yield of 12.466% collagen. Examination of the ash content, moisture content, fat and protein contain were obtained respectively 0.0105; 0.0525; 5.98; 85.76%. In the evaluation of spray gel preparations, it was found that the preparations F1-F8 met quality standards on the test of spreadability, adhesion resistance, dry time, pH, spray conditions, except for the viscosity value at F4 and F5. The highest % inhibition value was obtained at F8 (0.5% ethyl acetate fractions of turmeric rhizome and 2% collagen of catfish skin) amounted to 48.82%.
Conclusion: The spray gel preparations met quality standars and have antioxidant activity

Keywords: Turmeric, collagen, skin catfish, cosmeceuticals, spray gel

Cream Formulation Of Coriandrum sativum Leaves Extract As Potent Antiaging And Spf Activity

Siti Morin Sinaga[1*], Hariyadi Dharmawan Syahputra[1], Henni Cintya[1], Desi Yet Lie[2]

[1]Department of Pharmaceutical Chemistry, Faculty of Pharmacy.
[2]Department of Pharmaceutical Technology, Faculty of Pharmacy
Universitas Sumatera Utara, Medan-20155, Indonesia.
*Email: sitimorin@usu.ac.id

Abstract

Objective: *Coriandrum sativum* leaves traditionally use to treat sore and bump most of it's potential are overlooked, recent study shown it's potent anti-oxidant activity. The aim of this study was to determine the effects of coriander leaves formulated on to anti-aging cream and SPF activity**.**

Method: The coriander leaves was extracted by macerated with ethanol 70%. Cream preparation was made with different concentration of extract 0% (F1), 1% (F2), 3% (F3) and 5% (F4). Tests on cream preparation includes homogeneity, emulsion type, pH, stability for 12 weeks, irritation also anti-aging and SPF activity.

Results: Cream preparations were homogeneous, had an emulsion type o/w, pH 5.3, shapes, colors, and smells were stable during storage and didn't irritate skin. Measurement of anti-aging activity showed that 5% of (EE) can increase moisture 18.37% and evenness 21.00%, decrease pore size 27.44%, decrease spot 25.98% and *wrinkle* 15.28%, followed with SPF value is 20.5443.

Conclusion: Studies showed that coriander extract could provide anti-aging also give potent SPF activity.

Key words: *Coriandrum sativum, cream, anti-aging, Sun Protection Factor*

The Use Of Vegetable Oils (Raspberry Seed Oil And Carrot Seed Oil) To Formulate Nanoemulgel As Natural Sunscreen

Anayanti Arianto[1*], Hakim Bangun[2], Sumaiyah[3], Rahel Pesta Panjaitan[4], Christy Natasya Dwiyanti Putri Siregar[5]

[1,2,3,4,5] Department of Pharmaceutical Technology, Faculty of Pharmacy,
[1,2,3]Nanomedicine Center of Innovation, Universitas Sumatera Utara
*Email: anayanti@usu.ac.id

Abstract

Objective: The purpose of this study was to develop a nanoemulgel containing vegetable oil (raspberry seed oil or carrot seed oil) as an effective natural sunscreen.
Method: Sunscreen nanoemulgels containing 4% vegetable oil were formulated in three formula with different ratio of Tween 80 and Sorbitol. The sunscreen nanoemulgels were prepared by using the high energy emulsification method. The nanoemulgel formulations were determined for the organoleptic characteristic, globule size, pH, physical stability during storage for 12 weeks at room temperature, centrifugation test and cycling test. The Sun Protection Factor (SPF) value was determined by UV spectrophotometric method and compared with sunscreen emulgel.
Result: The sunscreen nanoemulgel containing 4% vegetable oil with a ratio of 40% Tween 80 and 20% Sorbitol resulted in the smallest average globule size of 335.87 nm (raspberry seed oil) and 338.34 nm (carrot seed oil) and the sizes were increased during 12 weeks of storage at room temperature but these nanoemulgels still stable (no phase separation). These nanoemulgels also stable after centrifugation and cycling test. The sunscreen emulgel showed phase separation after centrifugation test. The SPF value obtained from the nanoemulgels were 17.33 ± 0.41 (raspberry seed oil) and 20.28 ± 0.22 (carrot seed oil) and these value were higher than the sunscreen emulgel 12.60 ± 0.29 (raspberry seed oil) and 13.94 ± 0.27 (carrot seed oil).
Conclusion: The nanoemulgel formulations containing vegetable oil (4% raspberry seed oil or 4% carrot seed oil) were more stable and effective than emulgel as a natural sunscreen product.

Keywords: Raspberry seed oil, Carrot seed oil, Sunscreen, Nanoemulgel, Physical Stability, SPF

The Effectivity Of Suruhan (*Peperomia pellucida L.Kunth*) Leavess Extract Gel Againts The Number Of Macrophage Cells, Neutrophils Cells, And The Percentage Of Burns Healing

Ifmaily[1*], Suai Batul Islamiyah[1], Putri Rizki Fitriani[2]

[1]Pharmacy Faculty of Perintis University Padang
[2]Medical Faculty of Andalas University Padang
*Email: ifmaily.72@gmail.com

Abstract

Objective: Burns are a problem for sufferers, both physically and psychologically, sometimes its cause infection and death. The World Health Organization (WHO) in 2014 estimates there are 300,000 deaths that occur annually worldwide due to burns. Health of Ministry RI in 2013 the prevalence of burns in Indonesia was 0.7%. The purpose of research were the first to determine the effect of suruhan leaves extract gel on burns healing with parameters of the number of macrophage cells, neutrophil cells, and the percentage of burn healing. Second, to determine the variation in the concentration of suruhan leaves extract gel which gaves the best healing effect for burns
Method: This type of research was pure experimental with a post-test-only control group design. The Suruhan leaves made be extract. After than extract was formulated be gel form with 3 concentration of formulas consist of 2,5% , 5%, and 10%. The subjects of research were 25 rattus novergicus rats divided into 5 groups, where each group consists of 5 rats, namely the negative control group (gel base only), group II : 2,5% concentration of suruhan leaves extract gel, group III ; 5% concentration of suruhan leaves extract gel, group IV 10% concentration of suruhan leaves extract gel, and the comparison group was Bioplacenton. Metal plate (2 x 2 cm) heated in boiling water at 100oC for 15 minutes was used to produce full thickness burns on the dorsal part of the rats for 15 seconds. The suruhan leaves extract gel was applied topically to groups 2,3 and 4 according to the concentration on the burns for 14 days 2 times a day morning and evening. On 7th days, exudates in peripheral blood vessels in the burned skin tissue were taken as much as 0.5 pipettes of thoma leucocytes mixed with 09% NaCl until the mark of 11 pipettes, seen with a digital microscope with a 40x10 magnification. After 14 days of examination, the percentage of burn healing in rats was calculated.
Result: The results of research indicated that suruhan leaves extract gel had a significant effect ($p < 0.05$) on the number of macrophage cells, neutrophil cells, and the percentage of burn healing. The results of the average calculation of the percentage of burns healing, negative control group, the concentration of 2.5%, 5%, 10%, and comparison were 57.67%; 72.65%; 75.82%; 82.12%; 87.65%. The following shows the average number of macrophage cells 3.35 ± 0.78; 3.19 ± 0.68; 2.89 ± 0.53; 1.74 ± 0.57; 1.54 ± 0.51. Furthermore, the average number of neutrophil cells was 12.54 ± 1.67; 11.78 ± 1.48; 10.47 ± 1.24; 8.53 ± 0.91; 7.81 ± 0.58
Conclusion: The conclusion of research that all concentration of suruhan leaves extract gel have a significant effect on burn healing to decrease of the number of macrophage cells and neutrophil cells, but increase of the percentage of burn healing. The best suruhan leaves extract gel that provides burn healing is a 10% concentration.

Keywords: Peperomia pellucida L.Kunth, Suruhan Leaves, Extract, Gel, Burns Healing

Analysis Of Some Minerals From Leaves And Antioxidant Activities Of Fruit *Phyllantus emblica* L.

Masfria1,2, Sahril Siregar, Franky

[1]Chemical Department, Faculty of Pharmacy,
[2]Nanomedicine Department, Faculty of Pharmacy
Universitas Sumatera Utara, Medan, Indonesia
Email: masfria@usu.ac.id

Abstract

Background: Leaves and fruits (*Phyllanthus emblica* L.) have traditionally been used for several benefits, such as diarrhea drugs, acsites and it has been investigated that leaves and fruits contain alkaloids, saponins, flavonoids, which are secondary metabolites that are antioxidants that can inhibit reactions oxidation, by binding to free radicals and highly reactive molecules.
Objective: the analyze to mineral content of calcium, potassium, sodium and ferrum qualitatively and quantitatively from leaves, as well as the antioxidant activity of ethanol extracts of *Phyllanthus emblica* fruit.
Method: Analysis mineral uses atomic absorption spectrophotometry with air-acetylene flame. At successive wavelengths of 422.7 nm, 766.5 nm, 589.0 nm, 248.3 nm, for calcium, potassium, sodium and ferrum. The extract was obtained by percolation with 96% ethanol as a solvent and antioxidant activity test using the DPPH (1.1-*Diphenyl-2-Picrylhydrazyl*) free radical scavenging method by measuring the absorbance of DPPH using a UV-visible spectrophotometer at a wavelength of 515.5 nm.
Results: The mineral content of calcium, potassium, sodium and ferrum in kemloko leaves was (147.45 ± 1.0 9) mg/ 100g; (381.61 ± 0.32) mg / 100g; (21.88 ± 0.12) mg / 100g and (1.78 ± 0.08) mg/ 100g, the characteristics of the *P. emblica* fruit simplicia powder obtained 8.0% water content, water soluble extract 23.33%, extract content 30% soluble in ethanol, 6.66% total ash content, 3.33% acid insoluble ash content. Phytochemical screening results, simplicia powder and extracts contain alkaloids, flavonoids, glycosides, saponins, tannins, and steroids / triterpenoids. The results of the measurement of antioxidant activity of *P. emblica* fruit ethanol extract with IC_{50} value of 1.12 µg/ml, were stronger than Vitamin C with IC_{50} value of 4.44 µg/ml.
Conclusion: *Phyllanthus emblica* L. leaves contain calcium, potassium, sodium and ferrum, the antioxidant activity of ethanol extract of *P. emblica* fruit is stronger than vitamin C.

Keywords: Antioxidants, ethanol extracts, *Phyllanthus emblica* L., DPPH

Effectiveness Of Drug Information Services Implementation In Pangkalpinang City Health Centers

Rachmawati Felani Djuria

School of Health Polytechnics, Ministry of Health, Pangkalpinang
Email: felanDJ87@gmail.com

Abstract

Objective: One of the pharmaceutical services that must be implemented is the Drug Information Service (PIO). Djuria's research (2010) shows that the quality of PIO in Pangkalpinang City health centers is not good. Research in Defika (2015) also shows that the quality of PIO in the Gerunggang Health Center in Pangkalpinang City is not good. This result is in line with the Karolin study (2015), which states that there is a significant relationship between PIO quality and patient satisfaction at the Pangkalbalam Health Center in Pangkalpinang City. The results of these studies indicate that the service quality of the pharmaceutical PIO is still not maximally implemented. Therefore, it is important to conduct research on the effectiveness of PIO implementation in Pangkalpinang City Health Centers to improve the quality of pharmaceutical services.
Method: The type of research used is experimental design with prestest-posttest only control group. The study was conducted in the Pangkalpinang City Health Centers in March-December 2018. The study used 270 patients (each health center 30 patients) with accidental sampling techniques and analyzed bivariately using the dependent t test.
Results: There were significant differences in the PIO implementation of tangible dimensions (p value 0.045), ressponsiveness (p value 0,000), and empathy (p value 0.014), in the control group. There were significant differences in the PIO implementation of the dimensions of tangible (p value 0,000), reliability (p value 0.025), and empathy (p value 0.011) in the intervention group.
Conclusion: The implementation of PIO in Pangkalpinang City Health Centers was effective in both the control group (which only provided drug information on prescription services only) and intervention (which provided drug information in prescription services accompanied by leaflets and wall magazines).

Keywords: Drug Information Services, Pangkalpinang City Health Center

The Assessment Hypoxia Inducible Factor-1α level and Vascular Endothelial Growth Factor Level at Type 2 Diabetes Mellitus Patients, In North Sumatera, Indonesia

Rusdiana Rusdiana[1*], Sry Suryani Widjaja[1], Maya Savira[2], Rina Amelia[3], Rusmalawati[4]

1Departement of Biochemistry, Medical Faculty, Universitas Sumatera Utara, Jl. dr. Mansur Kampus USU Medan 20155, Indonesia.
2Departement of Fisiology, Medical Faculty, Universitas Sumatera Utara, Jl. dr. Mansur Kampus USU Medan 20155, Indonesia.
3Department of Community Medicine/Public Health, Medical Faculty, Universitas Sumatera Utara, Jl. dr. Mansur Kampus USU Medan 20155, Indonesia.
4Facutly of Public Health,Univesritas Sumatera Utara. ,Jl. Universitas Kampus USU Medan 20155, Indonesia.
*Email: drrusdiana@gmail.com

Abstract

Objective: Type 2 Diabetes Mellitus is a chronic metabolism disorder, by elevated blood sugar levels characteristic (hyperglycemia). Increasing Blood sugar Levels are measured reliable by glycated hemoglobin (HbA1C). Chronic hyperglycemia causes the endothelial cell dysfunction and cause of vascularization disorder and due to the hypoxia condition, marked by hypoxia-inducible factor-1α, and promote neovascularization and induce the secretion of Vascular Endothelial Growth Factor. This study to evaluate HIF-1 αand VEGF levels at type 2 diabetes mellitus patients, by a cross-sectional analytic method. We recruit the samples to type 2 diabetes mellitus from the various public health clinic in or around Medan city, Sumatera Utara.
Method: The inclusion criteria of the samples were all the patients diagnosed with type 2 diabetes mellitus with complications or without complication, both the sexes and the age of the samples over 40 years old and the exclusion criteria of the samples with type 1 diabetes mellitus and severe disease. Body Mass Index, Blood Pressure, duration of disease, family history, and medical treatment were recorded. The laboratory parameters including Blood Sugar Levels, Hba1c, were examined by Paramita Laboratory Clinic, and VEGF and Hypoxia-Inducible Factor -1α we examined by ELISA methods in the laboratory Medical Faculty, Universitas Sumatera Utara. The data of the samples were processed using a computer with the SPSS program.
Results: There was a significant relationship between the hypoxia-inducible factor 1α levels with the Vascular endothelial Growth Factor levels in the patients with type 2 diabetes mellitus ($p<0.005$)
Conclusion: Our data that the increased HIF-1α level so the increased VEGF Levels too.

Key Words: Mellitus type 2, Blood Sugar Levels, Hba1c, Hypoxia Inducible Factor 1α, Vascular Endothelial Growth Factor.

Mini Review: Implications Of Using Herbs On The Incidence Of Drug-Herbal Interaction

Hijra Novia Suardi[1*], Suryawati Suryawati[1], Vera Dewi Mulia[3]

[1]Department of Pharmacology, Faculty of Medicine, Universitas Syiah Kuala, Indonesia
[2]Department of Patology Anatomy, Faculty of Medicine, Universitas Syiah Kuala, Indonesia
*Email: hijra_novia@unsyiah.ac.id

Abstract

The use of medicinal herbs is increasingly being recognized in conventional medicine as advances in clinical trials have found the value of herbal medicines for treating and preventing disease. Some of the most widely used medicinal herbs including echinacea, garlic, ginkgo biloba, ginseng, turmeric, and ginger. The extensive use of herbal medicine in Indonesia is not only due to the abundance variety of herb plant species, but also affected by public acceptance and perception about the safety of herbal medicines. However, consumption of medicinal herbs is also susceptible to the unwanted effects of the herbal products. The possibility of side effects from herbal medicines may occur as a result from toxic effect of the containing active compounds, or from drug interactions of the herbal medicines and prescribed and/or over-the-counter drugs. With regards to drug interaction of the medicinal herbs, the side effects are classified into potentiating/increasing and inhibiting/reducing the drug effects, as well as initiating new unwanted symptoms. Until recently, the clinical trials have been conducted to evaluate herbal-drug interactions are very limited, with most of the reports on herbal-drug interactions are hypothetical reports or based on pre-clinical studies such as animal testing and in-vitro studies. Accordingly, attention to this issue is still very much needed, especially for widely used drugs with a narrow therapeutic index such as anti-cancer drugs, warfarin, digoxin and anti-seizure drugs. This paper highlights the potential of drug interactions of drugs and medicinal herbs, also discusses the interaction mechanisms, as well as the impacts of the side effect in order to minimize the risk of adverse effects of the consumption of herbal medicines.

Keywords: Medicinal herbs, drug-herbal interactions

Clinical Report And Identification Of Human Papillomavirus 16 And 18 In Reproductive Women

Lita Feriyawati[1*], Tetty Aman Nasution[2], And Dwi Rita Anggraini[3]

[1]Anatomic Department, Medical Faculty, Universitas Sumatera Utara, Medan,Indonesia
[2]Microbiology Department,Medical Faculty, Universitas Sumatera Utara, Medan,Indonesia
*Email: lita.feriyawati@usu.ac.id

Abstract

Objective: Examination of the cervix is a part of screening techniques to evaluate women reproductive health, by inspecting the cervix to identify whether an abnormality has occurred such as cervical erosion, and vaginal discharge. Human papillomavirus (HPV) has been identified as an essential etiology of cervical cancer, and type 16 and 18 are most carcinogenic for the progression of cervical. The aim of this study is to evaluate cervical erosion, and vaginal discharge and HPV infection in reproductive women.
Method: The study design was a cross-sectional approach by evaluate cervix by observed cervical erosion, and vaginal discharge, then collecting cervical swab of 73 reproductive women and undergo HPV 16 and 18 identification by Polymerase Chain Reaction (PCR)
Result: The study found that 76.71% women had mild cervical erosion, 17.80% women had moderate while 5.47% women had severe. Meanwhile 49.31% women had mild vaginal discharge, 39.72% women with moderate and the rest 10.95% had severe. No HPV 16 and 18 infection was found in all of the women.
Conclusion: In the present study, despite the presence of abnormal cervix with erosion and vaginal discharge with various condition but not accompanied with HPV 16 and 18 infection.

Keywords: Cervical erosion, Vaginal discharge, Human Papillomavirus

Analysis Of The Potential Interaction Of Type 2 Diabetes Mellitus Medicine With Hypertension Of Patients Of Road Care BPJS In One Of The Hospitals Of Badung District

Ni Nyoman Wahyu Udayani, I Made Agus Sunadi Putra, Puguh Santoso

Fakultas Farmasi Universitas Mahasaraswati Denpasar
Email: udayani.wahyu@yahoo.com

Abstract

Objective: This study aims to determine the prescription profile of DM patients with hypertension including the number of drugs prescribed, dosage form, class, and type of drug as well as the theoretical incidence of drug interactions, based on the mechanism of drug-drug interactions in outpatient BPJS patients in a district hospital Badung.
Methode: This type of research is a descriptive study with retrospective data collection, the sampling technique uses non-random purposive sampling techniques. Subjects that met the inclusion criteria were adult outpatient BPJS patients aged over 18 years diagnosed with Type 2 Diabetes Mellitus with Hypertension in the 2017 period. 175 study subjects were obtained. Based on the characteristics of the research subjects, from 175 research subjects, it was found that 84 male subjects and 91 female subjects. Based on the characteristics of age, the research subjects aged 31-40 years were 9 people, ages 40-50 years were 27 people, ages 51-60 years were 59 people, ages 61-70 years were 68 people and ages over 70 were 12 people.
Result: Based on the combination of drug types, 139 people used 2-3 kinds of drugs and 36 people used ≥ 4 kinds of drugs. The potential for drug interactions occurred more in study subjects who used 3 drug amounts or more types of drugs.
Conclusion: The results of the study can be concluded that most of them experienced drug interactions in patients with Type 2 Diabetes Mellitus with Outpatient BPJS Hypertension in one of the hospitals in Badung Regency

Keywords: Diabetes Mellitus Type 2, Hypertension, Drug Interaction

Analysis Of Incident Of Parkinsonism In Schizophrenic Patients Receiving First- Generation Antipsychotic Drug

Okta Muthia Sari[1*], Noor Cahaya[1], Khoerul Anwar[1], Sandra Putri Wijaya[1]

[1]Departement of Pharmacy, Faculty of Mathematics and Natural Sciences, Lambung Mangkurat University, Banjarbaru, Indonesia
*Email: okta.sari@ulm.ac.id

Abstract

Objective: The aim of this study was to assess the incident of parkinsonism in schioprenic patients under treatment first-generation antipsychotic.
Method: This was a hospital based cross-sectional study conducted in the inpatient of the Sambang Lihum Psychiatric Hospital, South Borneo, Indonesia. Data collection was carried out retrospectively during period 2018. There were 71 patient who met the inclusion criteria.
Result: A total of 33 (46.5%) patients who received first-generation antipsychotics developed parkinsonism. The most widely used first-generation antipsychotic haloperidol (56.3%) followed by the chlorpromazine-haloperidol combination (35.2%). Based on the analysis, there was no significant relationship between age and sex with parkinsonism. The use of haloperidol compared with chlorpromazine-haloperidol showed a significant difference with the incidence of parkinsonism ($p < 0.05$). Likewise haloperidol versus chlorpromazine-trifuloperazin ($p < 0.05$).
Conclusion: The conclusion of this study, the use of haloperidol is associated with the incidence of parkinsonism compared to other first-generation antipsychotics in schizophrenic patients.

Keywords: Parkinsonism, Schizhoprenic, First-generation, Antipsychotic

The Impact Of The Covid-19 Pandemic On Nurses Mental Health In Government Hospital In Padang City

Rahmi Yosmar[1], Nurul Pertiwi[1], Utami Budhi Fadilla[1], Elsa Badriyya[1*]

[1]Faculty of Pharmacy, Universitas Andalas
*Email: elsabadriyya@phar.unand.ac.id

Abstract

Background: The impact of the COVID-19 pandemic can affect the quality of one's health both physically and mentally, which can increase depression, anxiety, and stress. Nurse is one of the dominant professions in providing health services to patients. Therefore, researchers are interested in researching the impact of the COVID-19 pandemic on the mental health of nurses in government hospital in Padang City.
Objective: This study aims to determine the level of mental health of nurses and the factors that influence this condition.
Methods: The research was a descriptive study with quota sampling technique to determine the total of sample. The data was obtained from DASS-42 questionnare from 125 nurses in government hospital in padang city.
Result: The results showed that 88% of the nurses has contacted with COVID-19 patients. A total of 93.5%, 84.3%, and 91.7% nurses has a normal status of depression, anxiety, and stress. There were a significance difference between the levels of depression, anxiety, and stress with gender, history of illness, and age with p value < 0.05.
Conclusion: In this study, it can be concluded that there were relationship between the levels of depression, anxiety and stress on gender, history of illness and age on nurses in government hospital in Padang city. The COVID-19 Pandemic did not give a significance impact on nurses mental health, and the nurses can still provide a good service when preparing the medicine to patients.

Keywords: COVID-19, DASS-42, Nurse

Drug Utilization Profile In The Emergency Room At A Government Hospital

Hari Ronaldo Tanjung[1*], Tika Artika Sari [2]

[1,2]Faculty of Pharmacy, Universitas Sumatera Utara
*Email: harri@usu.ac.id

Abstract

Emergency room is the initial gateway for patients to enter the hospital and has a high risk of medication errors. Drug administration errors with serious consequences most often occur in the emergency room, intensive care unit, and operating rooms. Emergency patients also have an unpredictable severity and have a variety of diseases so that pharmacists in the ER must be ready for 24 hours and able to handle these varied patients.
Objective: This study aims to obtain data related to drug prescribing patterns and evaluate drug utilization in emergency room through the prescription data collection.
Method: This research was a descriptive analytic study with a retrospective cross sectional study design. The study was conducted in the emergency room of a government hospital in Medan, Indonesia from August to October 2020. Drug utilization data were data samples originating from doctor's prescriptions in emergency room in March to September 2019.
Result: of 866 drug item reviewed from 380 prescriptions, five major types of drugs were obtained and it consist of Ranitidine (21.01%), followed by Ceftriaxon (11.20%), Ketorolac (7.50%), Paracetamol (6.23%), and Metoclopramide (3.92%).
Conclusion: The results of this study indicate the dominance of the use of several classes of drugs, especially histamin H2-receptor antagonist and antibiotics that require caution in the use of drugs so as not to cause negative effects, especially in certain high-risk patients.

Keywords: Drug utilization, emergency room, hospital.

ABSTRACTS OF POSTER PRESENTATION

Effectiveness Comparison Of Green Tea, Probiotic And Chlorhexidin Mouthrinses Against *Streptococcus mutans* In 12-15 Years Old Children In Medan City

Siti Salmiah[1*], Khairunnisa[2*], Efranita Ndruru[3*], Annisa Farahdiba[4*]

Department of Pediatric Dentisry
Faculty of Dentistry, Universitas Sumatera Utara
Jl. Alumni No.2 Kampus USU Medan 20155
Email: salmiadentist@yahoo.co.id

Abstract

Objective: Plaque control is an effective way to prevent caries and periodontal disease, one of which is in the form of a mouthrinses such as green tea, probiotics and chlorhexidine. The aim of this study was to compare the effectiveness of gargling with green tea, probiotic and chlorhexidine mouthrinses on *Streptococcus mutans* count in children aged 12-15 years in Medan City.
Method: This type of research is a quasi experimental, comprised 30 healthy children of age group of 12-15 years. The subjects were assigned into three groups (A- green tea, B-probiotic, C-chlorhexidine). *Streptococcus mutans* count will be examined in the microbiology laboratory at baseline and 14th day.
Results: The results showed that there was a difference in effectiveness between three groups that is green tea group, probiotic group, and chlorhexidine 0.2% group at the end of 14th days. Paired T test showed that there was a statistically significant difference in the mean on *Streptococcus mutans* colony count in the green tea, probiotic, and chlorhexidine 0.2% (p=0.05). *One Way Anova* test showed a difference in the average difference on *Streptococcus mutans* colony count of green tea, probiotics, and chlorhexidine 0.2% (p=0.05).
Conclusion: Probiotic mouthrinses is more effective than green tea and chlorhexidine 0.2% mouthrinses to reduced *Streptococcus mutans* colony counts in children aged 12-15 years old in Medan City and potensially safe anti-plaqe agent in comparison to chlorhexidine.

Keywords: *Streptococcus mutans*, green tea, probiotic, and chlorhexidine.

Microbial Growth Test In Made From Kepok Banana (*Musa paradisiaca*, L) As A Natrium Media Substitution In Order

Eva Diansari Marbun*, Supartiningsih

Faculty of Pharmacy and Health Sciences, University of Sari Mutiara Indonesia
*Email : evadiansarimarbun@gmail.com

Abstract

Objective: Alternative media for the growth of microorganisms from materials that are easily found in nature. Such as from protein sources, namely cowpeas, green beans, black soybeans. Alternative media from carrots, tomatoes, cabbage and pumpkin. Alternative media from fruit and vegetable limes, avocados and beets, from carbohydrate sources such as yams, cassava, potatoes and palmirah tubers, and even sago. Kepok bananas are a source of carbohydrates and calories (energy) which are quite high. The carbohydrate content of 31.48 g provides calories (145 calories per 100 g), vitamins, minerals, protein, fat, crude fiber and ash. This study aims to utilize the peel starch and kepok banana as a medium for growing bacteria and fungi.
Methods: This study is an experimental study using a two-factor completely randomized design (CRD). Factor 1 is the type of gram-positive and negative bacteria and fungi and factor 2 is the type of alternative media, namely the medium of Kepok banana (*Musa paradisiaca*, L). The data were analyzed by descriptive qualitative. Making media formulas using kepok banana starch with concentrations of 1%, 2%, 3%, and 4% w / v, was made by adding peptone, agar, NaCl and aquadest. Furthermore, in vitro testing was carried out using bacteria and fungi with a comparison of nutrient media so that then using the pouring method was then observed.
Results: The results showed that the growth of the kepok banana starch medium could increase the growth of bacteria and fungi. The best growth is formula 4 (4%) w / v on fruit starch against gram-positive, gram-negative bacteria and fungi, because formula 4 starch contains higher nutrients than formula 1,2,3 of kepok banana starch.
Conclusion: Kepok banana starch can be used as a medium for growing bacteria and fungi

Keywords: Alternative Media, Bacteria, Fungi, *Musa paradiisiaca*, L.

Phytochemical Screening Of Ketapang Leaves Extract And Antibacterial Activity Test Of *Escherichia coli*

Asiska Permata Dewi[1*], Dini Mardhiyani[2]

[1,2] Study Program of Pharmacy and Food Analyst Faculty of Medical and Health Science
University of Abdurrab
*Email: asiska.permata@univrab.ac.id

Abstract

Objective: Ketapang leaves are a plant that can be used by the community traditionally to cure the infections of the skin caused by bacteria. The purpose of this study is to identify secondary metabolite compounds contained in ketapang leaf extract, and to determine the antibacterial activity against Escherichia coli
Method: Ketapang leaves extraction is carried out by maceration method with 96% ethanol solvent, phytochemical screening and antibacterial activity test is carried out using agar diffusion method.
Result: The results showed that the ketapang leaves extract contained secondary metabolites such as flavonoids, triterpenoids, saponins and tannins. While the antibacterial activity of ketapang leaf extract against Esherichia coli at a concentration of 1%, 2%, 3% were 6 mm, 7 mm, and 8 mm, while the positive control was 15 mm
Conclusion: Based on the above results, ketapang leaves extract contains several secondary metabolite compounds, and has antibacterial activity against Escherichia coli.

Keywords: Ketapang leaf extract, phytochemical screening, antibacterial activity, Escherichia coli

The Effect Of *Coriandrum sativum* Ethanolic Leaves Extract As Potential Antimicrobes Agent

Siti Morin Sinaga[1*], Hariyadi Dharmawan Syahputra[1], Henni Cintya[1]

[1]Department of Pharmaceutical Chemistry, Faculty of Pharmacy.
Universitas Sumatera Utara, Medan-20155, Indonesia.
*E-mail : sitimorin@usu.ac.id

Abstract

Objective : *Coriandrum sativum* leaves contain phytochemical compounds that have anti-microbes potential. The aim of this study was to determine the effects of coriander leaves towards their antimicrobial activities.
Method : The coriander leaves was extracted by macerated with ethanol 70%. Antimicrobe activity tested with disc diffusion method towards *Streptococcus aureus* ATCC 25923, *Streptococcus mutan* ATCC 25175, *Streptococcus sanguinis* ATCC 10556, *Trichophyton mentagrophytes* ATCC 18748, *Lactobacillus acidophilus* ATCC 4356, *Enterococcus faecalis* ATCC 29212, and *Candida albicans* ATCC 10231.
Results : Anti-microbes activity of EE at concentration 500 mg/ml towards: *Streptococcus aureus* with Mean Inhibition Concentration (MIC), 9.600.21 mm; *Streptococcus mutan* with MIC, 10.530.13 mm; *Streptococcus sanguinis* with MIC, 8.990.14 mm; *Trichophyton mentagrophytes* with MIC, 15.670.02 mm; *Lactobacillus acidophilus* with MIC, 10.760.07 mm; *Enterococcus faecalis* with MIC, 8.890.29 mm; and *Candida albicans* with MIC, 10.180.69 mm.
Conclusion : Studies showed that coriander in ethanolic extract could provide anti-microbes activity.

Key words : *Coriandrum sativum, Coriander extract, anti-microbes*

Phytochemical Screening And Antidiarrheal Activity Test In-Vivo And In-Vitro Ethanol Extract Of A Jackfruit (*Artocarpus heterophyllus* Lamk.) From Sumatera Utara

Helen Anjelina Simanjuntak[1]*, Rahmiati[2], Toberni Santika Situmorang[3], Hermawan Purba[1,4], Defacto Firmawati Zega[5], And Panal Sitorus[6]

[1]Department of Pharmacy, Sekolah Tinggi Ilmu Kesehatan (STIKes) Senior Medan, Medan-20141, Indonesia
[2]Department of Biology, Faculty Science and Technology, Universitas Medan Area, Medan-20223, Indonesia
[3]Department of Health Analyst, Universitas Efarina, Medan-21162, Indonesia
[4]Department of Chemistry, Faculty of Mathematics and Natural Science, Universitas Sumatera Utara, Medan-20155, Indonesia
[5]Department of Diploma-III Midwifery, Sekolah Tinggi Ilmu Kesehatan (STIKes) Senior Medan, Medan-20141, Indonesia
[6]Department of Pharmaceutical Biology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan-20155, Indonesia
*E-mail: helenanjelinas@gmail.com

Abstract

Objective: The purpose of this study was to determine the phytochemical screening that acted as an antidiarrheal. The method was carried out by in-vivo testing on test animals to see the pharmacological effects as an antidiarrheal and in-vitro to test the bacteria that caused diarrhea.
Method: The defecation method in-vivo anti-diarrhea test was carried out with 5 treatment groups (Group 1, 0.5% Na-CMC, Group 2 Ethanol Extract of Young Jackfruit Fruit 300 mg/kg BW, Group 3, 400 mg/kg BW, Group 4, 500 mg/kg BW, Group 5 Loperamid HCl 0.2 mg / kb BW). The in-vitro anti-diarrheal test for the disc diffusion method was carried out on *Escherichia coli* and *Salmonella typhi* bacteria using young jackfruit extract at concentrations of 200 mg/ml, 300 mg/ml, 400 mg/ml, and 500 mg/ml.
Result: Phytochemical screening content of alkaloids, tannins, saponins and flavonoids. Antidiarrheal in-vivo showed that the doses of 300 mg/kg BW, 400 mg/kg BW, and 500 mg/kg BW were not significantly different with the administration of loperamide 0.2 mg/kg BW. In-vitro antidiarrheal showed antibacterial activity against *Escherichia coli* and *Salmonella typhi* at all concentrations classified into moderate categories.
Conclusion: Secondary metabolites from ethanol extract of jackfruit are more effective as antidiarrhea in-vivo.

Key words: Phytochemical, antidiarrheal, in-vivo, in-vitro, *Artocarpus heterophyllus* Lamk**.**

Phytochemical Screening Of Standardized Ethanol Extract Of Propolis

Tri Widyawati[1*], Siti Syarifah[1], Dwi Rita Anggraini[2], Lolyta Fitri Mustanti[3]

[1]Pharmacology and Therapeutic, Faculty of Medicine, Universitas Sumatera Utara, Medan, Indonesia
[2]Anatomy Department, Faculty of Medicine,Universitas Sumatera Utara, Medan, Indonesia
[3]Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia
*Email : tri.widyawati@usu.ac.id/tw_rozan@yahoo.com

Abstract

Objective: Propolis is one of the potential natural medicine sources that easily found in Papua island, Indonesia. This study aims to evalute its phytochemical compounds qualitative and quantitatively.
Method: Propolis ethanol extracts (PEE)were obtained by maceration method using ethanol 965. Dried extracts were screened to identify the presence of alkaloids, flavonoids, tannins, saponins, glycosides, and steroids/terpenoids. Total phenolics was determined with Folin–Ciocalteu analysis and Flavonoid was determined using aluminium chloride colourimetric method.
Physicochemical were conducted previously involved water content, total ash content, insoluble acid content, water-ethanol soluble extractive content based on Farmakope Herbal Indonesia.
Result: PEE contained alkaloids, flavonoids, tannins, glycosides and saponins compounds. Total phenolics and total flavonoids results were as follows 74.84 mg/g in GAE and 25.72 mg/g in QE.
Non specific parameter physicochemical i.e water content, total ash content, insoluble acid content, water-ethanol soluble extractive content are 57.99%; 14.48±2.62%; 17.71±5.36%.; 18.84%; 40.99%.
Conclusion: The present study shows that propolis ethanol extract contained bioactive compounds which are potential as one of raw materials for natural medicines.

Keywords: phytochemical, physicochemical, propolis, phenolic, flavonoid

Phytochemical And Physicochemical Screening Of Temulawak (*Curcuma xanthorriza*)

Tri Widyawati[1*], Siti Syarifah[1], Dwi Rita Anggraini[2], Lolyta Fitri Mustanti[3]

[1]Pharmacology and Therapeutic, Faculty of Medicine, Universitas Sumatera Utara, Medan, Indonesia
[2]Anatomy Department, Faculty of Medicine,Universitas Sumatera Utara, Medan, Indonesia
[3]Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia
*Email : tri.widyawati@usu.ac.id/tw_rozan@yahoo.com

Abstract

Objective: Temulawak (*Curcuma xanthorriza*) is a native Indonesian that have been widely used as jamu for health supplement. This study aims to evaluate physicochemical and phytochemical of *C. xanthorriza* rhizome.
Method: The rhizomes powder of *C. xanthorriza* were extracted by maceration method using ethanol 96% and evaporated by rotary evaporator. Both of simplicia and extract were carried out of phytochemical and physicochemical screening. Phytochemical tests were conducted to trace the presence of alkaloids, flavonoids, tannins, saponins, glycosides, and steroids/terpenoids. Total phenolics and total flavonoid were measured in extract. Physicochemical screening involved water content, total ash content, insoluble acid content, water-ethanol soluble extractive content based on Farmakope Herbal Indonesia.
Result: *C. xanthorriza* contained alkaloids, flavonoids, tannins, glycosides and steroids/terpenoids compound in simplicia and extract. Total phenolic and total flavonoid as follows 122,61 ± 0.00 mg/g and 138.12 ± 0.00 mg/g of each. Non specific parameter physicochemical i.e water content, total ash content, insoluble acid content, water-ethanol soluble extractive content are 5.99±0.00%; 6.49±0.00%; 1.32±0.28%.; 16.99±1.00-23.65±0.57% in simplicia and 9.25±1.09%; 11.30 ±1.89%; 6.98±2.98%; 30.95±0.00-19.98±0.00% in extract.
Conclusion: The present study concludes that the *C. xanthorriza* has the potential to act as a source of useful medicinal herbs because of the presence of various phytochemical constituents including phenolic and flavonoid compounds.

Keywords: Curcuma xanthorriza, physicochemical, phytochemical, standardization

Comparison Of Total Phenolic Content And Antioxidant Activity Between Maceration And Reflux Extraction On Galam Sawdust (*Melaleuca Leucadendron* Linn.)

Hafiz Ramadhan[1*], Dyera Forestryana[2]
[1,2]Department of Pharmacy, STIKES Borneo Lestari, Banjarbaru, South Kalimantan, Indonesia
*Email : ramadhanhafiz05@gmail.com

Abstract

Objective: Sawdust is a waste that can be used as microcrystalline cellulose (MCC). Galam (*Melaleuca Leucadendron* Linn.) is one of the woods that produce MCC from sawdust which is used for construction and furniture manufacturing purposes. MCC sawdust extraction can produce residual extracts that can be utilized for certain potential activities. This study aimed to determine the difference between reflux extraction and maceration method towards antioxidant activity and total phenolic content of Galam sawdust.
Method: Extraction of Galam sawdust by using n-hexane:ethanol (1:2) consisting of two treatment groups: maceration and reflux extraction methods groups. Total phenolic contents (TPC) of the samples were determined spectrophotometrically using Folin-Ciocalteu reagent with gallic acid as a standard solution. Measurement of antioxidant activity was examined by DPPH (2,2-diphenyl-1-picrylhydrazyl) scavenging method.
Result: The TPC of the reflux extract group (93.555 ± 0.872 mg GAE/g extract) was found significantly higher as compared to the maceration extract group (40.735 ± 0.903 mg GAE/g extract). The reflux extract group has shown powerful DPPH scavenging activity (IC_{50} = 259.431 ppm) than the maceration group (IC_{50} = 389.698 ppm), but including very weak antioxidant activity when compared with positive control gallic acid (IC_{50} = 2,256 ppm).
Conclusion: The results of the study show that the reflux extraction of Galam sawdust produces more powerful antioxidant activity compared with the maceration method, even though including very weak antioxidant activity, but it correlated with their phenolic contents.

Keywords: Galam, sawdust, reflux, maceration, antioxidant, phenolic.

Optimization Of Microwave Assisted Extraction Of Polyphenolic Content From Combination Of *Centella asiatica* And *Zingiber officinale*

Putu Gita Maya Widyaswari Mahayasih[1], Harizal[1], Islamudin Ahmad[2*], And Herman[2]

[1] Department of Pharmacy, Faculty of Health and Sciences, Universitas Esa Unggul, Jakarta, Indonesia
[2] Department of Pharmaceutical Sciences, Faculty of Pharmacy, Mulawarman University, Samarinda, East Kalimantan, Indonesia
*Email : islamudinahmad@yahoo.com

Abstract

Objective: The aim of this study was to optimize the extraction of polyphenolic content from combination of Pegagan (*Centella asiatica*) and Ginger (*Zingiber officinale*) using microwave-assisted extraction (MAE).
Method: The experimental design of optimization methods is carried out using four parameters, namely microwave strength (30, 50, and 70 watt), extraction time (10, 20, and 30 minute), solvent concentration (70%, 80% and 90% of ethanol), and liquid-solid ratio (8, 11, 14 ml/g). The design of the optimization process of the extraction was using Box-Behken design, and Response Surface methodology was using to obtain the predictive model (multivariate quadratic regression equation). The yields of total phenolic content were used as the response value to analyzed the response surface. The 1:1 ratio was used as the combination of the *C. asitica* and *Z. officinale*.
Result: The predictive model design by Box-Behken study provide 29 combination of optimization process. The experimental study showed that the four-optimization factor used in this study was affected the yields of total phenolic content of C. asiatica – Z. officinale extract which extracted by MAE. The regression model obtained by the RSM will provide the optimum method to extract the combination of C. asiatica – Z. officinale using MAE method of extraction.
Conclusion: Extraction methods with MAE can extract polyphenolic content from the combination of C. asiatica – Z. officinale quickly, easily, and efficiently.

Keywords: Centella asiatica, Zingiber officinale, Microwave assisted extraction, Box-Behken Study, Respon Surface Methodology.

Antimicrobial Activity Of N-Hexane And Water Fraction Of Pagoda Leaves (*Clerodendrum paniculatum* L.)

Dewi Pertiwi[1], Panal Sitorus[1], Ihsanul Hafiz[2]

[1]Department of Pharmaceutical Biology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, 20155, Indonesia
[2]Department of Pharmacy, Faculty of pharmacy and health, Institut Kesehatan Helvetia, Medan, 20124, Indonesia
*E-mail : dewipertiwi@usu.ac.id

Abstract

Objective: The aim of this study is to determine antimicrobial activity of n-hexane and water fraction of *Clerodendrum paniculatum* against *Pseudomonas aeruginosa.*
Method: The antimicrobial activity of the isolated compound was performed by the paper disk method.
Result: N-hexane fraction of *Clerodendrum paniculatum* have antimicrobial activity to *Pseudomonas aeruginosa* with inhibition 9,43 ± 0,057, 8,76 ± 0,058, 8,17 ± 0,115, 7,03 ± 0,057 in concentration 300 ppm, 200 ppm, 100 ppm and 50 ppm. Water fraction of *Clerodendrum paniculatum* have antimicrobial activity to *Pseudomonas aeruginosa* with inhibition 9,13 ± 0,057, 8,30 ± 0,100, 7,86 ± 0,058, 6,53 ± 0,057 in concentration 300 ppm, 200 ppm, 100 ppm and 50 ppm.
Conclusion: N-hexane fraction of *Clerodendrum paniculatum* have antimicrobial activity greater than water fraction.

Keywords: *Clerodendrum paniculatum*, antimicrobial, n-hexane, fraction.

Identification Of Secondary Metabolites And Activities Antioxidants Of Bintangur Leaves (*Calophyllum inophyllum* L.) Againts DPPH Free Radicals (1.1 Diphenyl-2-Picrylhydrazyl)

Ahmad Purnawarman Faisal[1*], Pratiwi Rukmana Nasution[2], Riza Fahlevi Wakidi[3]

Department of Pharmacy, Health Polytechnic Ministry of Health, Medan, North Sumatera, Indonesia.
*Email : purn28@gmail.com

Abstract

Objective: The aim of this study was to know the antioxidant activity in ethanol extract against DPPH radicals with IC50 parameters that have the highest antioxidant activity.
Method: Bintangur leaf powder was macerated using ethanol. Ethanol extract was analyzed the content of its secondary metabolite compounds. The extract obtained tested its antioxidant activity against DPPH radicals using a spectrophotometer at a wavelength of 517 nm and determined the price of IC50. Routine was used as a positive control in this study.
Result: The results of the study with 3 replications showed ethanol extract had consecutive IC50 values of 65.49 ppm, 65.76 ppm, 65.76 ppm. The average IC50 value is 55.67 ppm.
Conclusion: Etanol extract of bintangur leaves have a antioaxidant activity

Keywords: Bintangur, Chalophyllum inophyllum L., Antioxidants, DPPH

In Silico Analysis of Flavonoid Compounds from *Artocarpus* Genus in Inhibit Glycogen Synthase Kinase-3β (GSK-3β)

Nazliniwaty[1*], Olivia Avrianti Hanafiah[2], Dewi Pertiwi[3], Denny Satria[3]

[1]Department of Pharmaceutical Technology, Faculty of Pharmacy, Universitas Sumatera Utara, Jl. Tri Dharma No.5, Kampus USU, Medan, Sumatera Utara, Indonesia 20155.
[2]Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Universitas Sumatera Utara, Jl. Universitas No.2, Kampus USU, Medan, Sumatera Utara, Indonesia 20155.
[3]Department of Pharmaceutical Biology, Faculty of Pharmacy, Universitas Sumatera Utara, Jl. Tri Dharma No.5, Kampus USU, Medan, Sumatera Utara, Indonesia 20155.
*Email: nazliniwaty@usu.ac.id

Abstract

Objective: *Artocarpus* is one of the genus that have many biological activity such as wound healing. Glycogen synthase kinase-3β (GSK-3β) is one of protein that play important role in wound healing. The aim of this study is to analyze the activity of flavonoid compounds from *Artocarpus* as inhibitor of GSK-3β with in silico method.
Method: In silico was analyzed using PLANTS program. The model of three dimension enzyme structures used in this research were Glycogen synthase kinase-3β (GSK-3β), binding pocket with the Protein Data Bank (PDB) code 1Q5K. Two and three dimension of compounds (43 compounds) were generated using Marvin Sketch program.
Results: Artoindonesianin U, Artoindonesianin V (most active compound) and native ligand were inhibited Glycogen synthase kinase-3β with docking score -106.7250; -106.3090 and -84.6863 respectively.
Conclusion: The results reveal that flavonoids from genus *Artocarpus* have wound healing activity.
Key words: *Artocarpus*, flavonoids, Glycogen synthase kinase-3β, in silico

Chemical Compounds From *Saurauia vulcani* Korth. Leaves As Potent Hypolipidemic Agent: In Silico Docking Analysis

Rosidah[1*], Jansen Silalahi[2], Muhammad Fauzan Lubis[3], Mahatir Muhammad[3], Denny Satria[3]

[1.] Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, 20155
[2.] Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, 20155
[3.] Department of Pharmaceutical Biology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, 20155
*Email: rosidah@usu.ac.id

Abstract

Objective: *Saurauia vulcani* Korth. is an endemic plant that is widely found in North Sumatera that has an activity in reducing blood glucose levels. The aim of this study was to analyze the activity of chemical compounds from *Saurauia vulcani* Korth. Leaves as hypolipidemic agent with in silico method.
Method: In silico docking was using PLANTS program. The model of three dimension enzyme structures used in this research were human squalene, HMG-CoA, and oxido squalene cyclase, binding pocket with the Protein Data Bank (PDB) code 3ASX, 1HWK and 1W6J. Two and three dimension of compounds (13 compounds) were generated using Marvin Sketch program..
Results: β-sitosterol (most active compound), simvastatin (drug standard) and native ligand were inhibited human squalene with docking score -107.5630; -97.8448, and -120.5310 respectively. trans-3-O-p-Hydroxycinnamoyl ursolic acid (most active compound), simvastatin (drug standard) and native ligand were inhibited HMG-CoA with docking score -85.6137; -85.5938, and -105.683 respectively. Stigmasterol (most active compound), simvastatin (drug standard) and native ligand were inhibited oxido squalene cyclase with docking score -109.9970; -92.4990, and -129.0450 respectively.
Conclusion: The results reveal that chemical compounds from *Saurauia vulcani* Korth. Leaves have hypolipidemic activity.

Keywords: *Saurauia vulcani* Korth. Leaves, hypolipidemic, chemical compounds, in silico

Antioxidant Activity Of Edible Bird's Nest (*Aerodramus fuciphagus*) Water Extract Using DPPH, NO, FRAP And Cuprac Methods

Dita Ayulia Dwi Sandi[1*], Eka Fitri Susiani[1], I Ketut Adnyana[2], Pratiwi Wikaningtyas[2]

[1]Pharmacy Departement, Borneo Lestari College of Health Sciences Banjarbaru, Indonesia, and [2]School of Pharmacy, Bandung Institute of Technology, Bandung, Indonesia.
*Email: dita.ayulia@gmail.com

Abstract

Objective : Edible bird's nest (EBN) has been used traditionally in Asia for its health benefits, one of which is as an antioxidant. Previous studies have shown antioxidant effect of EBN water extract nest using ABTS and ORAC methods. The chemical structure of antioxidants, sources of free radicals, and physico-chemical properties of different sample preparations can provide various test results for antioxidant activity. This study aims to determined and compared the antioxidant activity of EBN water extract using DPPH, NO, FRAP and CUPRAC methods.
Method : The analysis of antioxidant activity was used UV-Vis spectrophotometry. The results were be explained in Inhibition Concentration 50% (IC50), effective concentration 50% (EC50) and Ascorbic Acid Equivalent (AAE).
Result : The IC50 value of EBN water extract using DPPH and NO method were 1135.61 µg/mL (very weak category) and 16.86 µg/mL (moderate category). The EC50 value of EBN water extract using the CUPRAC method was 1325.58 µg/mL. The AAE values of EBN water extract using the FRAP and CUPRAC method were 4.567 ± 0.30 µg AAE/mL extract and 3.487 ± 0.095 µg AAE/mL extract.
Conclusion : Edible bird's nest (EBN) has a potential a natural antioxidant material

Keywords : antioxidant, DPPH, FRAP, NO, CUPRAC, edible bird's nest, inhibition concentration 50%, effective concentration 50%, Ascorbic Acid Equivalent, aerodramus fuchipagus

Evaluation Of Dextromethorphan Hbr And Glyceryl Guaiacolate Mixture By Derivative Spectrophotometric And High-Pressure Liquid Chromatography Methods

Muchlisyam*, Yade Metri Permata, Hafid Syahputra

Departement of Pharmaceutical Chemistry, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Sumatera Utara, Indonesia
*Email: muchlisyam@usu.ac.id

Abstract

Objective: The derivative spectrophotometric and high-pressure liquid chromatography (HPLC) methods are the goal of evaluating the simultaneous level of dextromethorphan HBr and glyceryl guaiacolate mixture in Syrup.
Methods: Determination of the mixture by HPLC method at the wavelength of 273 nm with a mobile phase of methanol-water ratio (45:55) and a flow rate of 1 ml/minute, and derivative spectrophotometry method with methanol-water (50:50) for dextromethorphan HBr and glyceryl guaiacolate.
Results: The retention time of dextromethorphan at 8.1 minute and glyceryl guaiacolate at 3.7 minutes in HPLC method, and using the derivative spectrophotometric method on 1 st derivatization with Δλ 2 nm have wavelength 263.6 nm for dextromethorphan HBr and 2nd derivatization with Δλ 2 nm at 285 nm for glyceryl guaiacolate, The locally produced syrup samples using the HPLC and derivative spectrophotometric methods with zero-crossing method met the level requirements mixture of dextromethorphan and glyceryl guaiacolate less than 90.0% and not over 110.0% of the amount stated on the label. The validation test showed that these two methods had met the validation limits.
Conclusion: The derivative spectrophotometric and the HPLC method can be used to determine a mixture of dextromethorphan HBr and glyceryl guaiacolate and fulfilling the validation requirements and level requirements according to USP 30 of 2007.
Keywords: Dextromethorphan HBr, Derivative spectrophotometric, Glyceryl guaiacolate, HPLC, Validation.

Comparative Study Of Phytochemical Screening And DPPH Radical Scavenging Activity Of Ficus Carica Linn. Leaves Extracts

Julia Reveny, Hetty Lendora Maha, Lia Laila*

Department of Pharmaceutical Technology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia
*Email: lialaila@usu.ac.id

Abstract

Objective: In this study, we focused on two extraction solvents and one antioxidant examination which show the most reliable antioxidant activity. The objective of the study was to compare the phytochemical components and antioxidant activity of two *Ficus carica* Linn. extracts.

Methods: The sample used this study was from the local (Indonesian) *Ficus carica* Linn. plant. The extraction was conducted using two organic solvents, methanol and ethanol with maceration technique. The phytochemical screening of the extracts was conducted on several metabolite classes, namely alkaloids, flavonoids, steroids, tannins, glycosides and saponins. The antioxidant activity assay was performed using 2,2-diphenyl-1-picryl-hydrazyl-hydrate (DPPH) method with ascorbic acid as the comparative standard.

Results: The phytochemical screening showed the extracted components of the extracts. The extracts gave positive results to all of the metabolite classes tested, except for the methanol extract showed negative result to alkaloids compounds. The antioxidant assay showed that both extracts had strong antioxidant activity. However, the methanol extract demonstrated higher antioxidant activity compared to the ethanol extract.

Conclusion: The ethanol extract of *Ficus carica* Linn. has more phytochemical components but lower antioxidant activity compared to the methanol extract.

Keywords: Fig, *Ficus carica*, antioxidant, phytochemical screening, DPPH.

Formulation And Physical Evaluation Svae Tablet From Waste Of Gong-Gong Snipe Shells *(Strombus turturella)*

Suci Fitriani Sammulia [1], Suhaera[2*], Anggun Setyarini[3]

[1,2,3]Institut Kesehatan Mitra Bunda , JL.Seraya No 1, 29444, Batam
*Email: heraemilsalim1691@gmail.com

Abstract

Objective: Snail Gong-gong (*Strombus Turturella*) is a typical food of the people Riau Islands. The processed food produces the waste of a well-utilized shell. The main composition of the gong-gong slug is calcium carbonate ($CaCO_3$). With the content of calcium, the waste shell of gong-gong can be used as raw material for the preparation of pharmaceutical preparations such as suction tablets. This study aims to obtain the formulation of a lozenges from the waste of gong-gong shell with good physical properties.
Methode: A lozenges is made by a method of wet granulation in three formulas with variations in the concentrations of the case of the F1 gong-gong 15%, F2 30%, and F3 45%. The granules and tablets are evaluated.
Result: The results of the granule evaluation showed that the granule produced from the three formulas has fulfilled the requirements, the results of the tablet evaluation showed on organoleptic test, size uniformity, hardness, disintegration time of all three formulas have fulfilled good lozenges requirements. While the weight uniformity of F1 is not eligible, the friability test F1 and F2 are not eligible.
Conclusion: The results of this study showed that the gong-gong snail shells can be formulated into a lozenges and have good physical properties.

Keywords: gong-gong snail shells (*Strombus Turturella*), granules, lozenges tablet, calcium.

Combination Of Polyherbal Leaves (*Camellia sinensis* (L). Kuntze*), Stevia rebaudiana* Bertoni*, Smallanthus sonchifolius And Syzygium polyanthum* (Wright) Walp, As A Source Of Bioactive Antioxidants

Lilik Sulastri[1,*)], Rakhmat Ramdhani[1], M. Ikhwan Setiawan[1], Achmad Fauzi Isa[1], Padmono Citroreksoko[1], Nuzul Gyanata[1], Partomuan Simanjuntak[2,3]

[1]Sekolah TinggiTeknologi Industri dan Farmasi (Jl. Kumbang No. 23) Bogor 16151, Indonesia;
[2]Research Center for Chemistry – Indonesian Institute of Sciences (LIPI) Kawasan Puspiptek, Serpong Tangerang Selatan, banten 15314
[3]Faculty Of Pharmacy, Pancasila University, Jl. Srengseng, Jagakarsa Jakarta, Indonedsia
*Email: liliksulastri28@gmail.com

Abstract

Objective: Antioxidants are compounds that can ward off or prevent oxidation reactions from free radicals. (*Camellia sinensis* (L). Kuntze*), Stevia rebaudiana* Bertoni*, Smallanthus sonchifolius* and *Syzygium polyanthum* (Wight) Walp,leaves are known to contain flavonoids, phenols and tannins which function as antioxidants. The aims of this study was determine the antioxidant activity of four types of ethanol extract 96% and their combinations.
Methode: The 96% ethanol extract was obtained through the maceration method then carried out the phytochemical test, single test and combination extract with a ratio of 1: 1, 1: 3, 3: 1 using DPPH reagent.
Result: Phytochemical screening showed that the four extracts contained alkaloids, flavonoids, phenolics, saponins and tannins. Extracts of yakon leaves, stevia, tea and salam have antioxidant activity with IC_{50} values) of 37,16 ; 84,52 ; 9,43 ; and 12,53 ppm, there are two best combinations in the ratio of 3 : 1 (Tea: Yakon) and (Tea : Salam) with IC_{50} values of 6,49 and 7,91 ppm with a positive control vitamin C of 5,22 ppm.
Conclusion: These results indicate that there is a synergistic relationship between the chemical compounds contained in yakon, tea and bay leaves.

Keywords: Antioxidant; DPPH; poly herbal; (*Camellia sinensis* (L). Kuntze*), Stevia rebaudiana* Bertoni*, Smallanthus sonchifolius* and *Syzygium polyanthum* (Wight) Walp

Determination Of Phenolic, Flavonoid Content, And Antioxidant Activities Of Seri *(Muntingia calabura* L.*)* Leaves Ethanol Extract

Kasta Gurning*,[1], Damson A. Lumbangaol[1], Iksen[1], Risanti F.R. Situmorang[2], and Suharni P. Sinaga[3]

[1] Department of Pharmacy, Sekolah Tinggi Ilmu Kesehatan Senior Medan, Medan-20141, Indonesia
[2] Department of Health Analyst, Sekolah Tinggi Ilmu Kesehatan Senior Medan, Medan-20141, Indonesia
[3] Department of Midwifery, Sekolah Tinggi Ilmu Kesehatan Senior Medan, Medan-20141, Indonesia
*Email: kastagurning@gmail.com

Abstract

Objective: The determination of phenolic, flavonoid content and antioxidant activity testing of the ethanol extract of the *Muntingia calabura* L., leaves.

Methods: The extraction was carried out by maceration method using ethanol as a solvent. Phenolic determination with Folin-Ciaocalteu reagent was measured at a wavelength of 765 nm, while the levels of flavonoids with AlCl3 reagent were measured at a wavelength of 431 nm using colorimetric methods, and testing of antioxidant activity with 2,2-diphenyl-1-picrylhydrazyl (DPPH) was measured at wavelength of 517 nm using UV-Vis spectrophotometry.

Result: Phenolic content is 2.258±0.008 mg gallic acid equivalent (mg GAE/g d.w), flavonoid content 2.476±0.019 mg quercetin equivalent (mg QE/g d.w) and the antioxidant activity of the ethanol extract of the *M. calabura* L., leaves (IC_{50}) was 18.45.

Conclusion: The ethanol extract of M. calabura leaves contains phenolics, flavonoids and has very strong activity as antioxidants.

Keywords: *Muntingia calabura* L., Colorimetry, Phenolic, Flavonoids, Folin-Ciaocalteu, and Antioxidants.

Antioxidant And Cytotoxic Effect Of Belalai Gajah Leaves (Sabah snake Grass)

Sry Suryani Widjaja*[1], Rusdiana Rusdiana[1], M. Ichwan[2]

[1]*Department of Biochemistry, Faculty of Medical Universitas Sumatera Utara, Medan, Indonesia*
[2]*Department of Pharmacology and Therapeutics, Faculty of Medicine, Universitas Sumatera Utara,Medan, Indonesia*
Email: srysuryani@gmail.com

Abstract

Objective: This study aims to look at the anti oxidant and cytotoxic effect of sabah snake grass on MCF-7 and T47D breast cancer cells lines.
Methods: This is an experimental study to compare the anti-oxidant and cytotoxic effect of extrat ethanol, ethyl, n-Hexane of sabah snake grass on MCF-9 and T47D breast cancer cells lines.
Results: Total fenolat from extract ethanol is 129 mg/g GAE, extract ethyl 91 mg/g GAE, n-Hexane 1,3 mg/g GAE, total Flavonoid from extract ethanol is 41 mg/g QE, extract ethyl 13,3 mg/g QE, n-Hexane 43,5 mg/g QE, IC_{50} cytotoxic effect of extract ethanol on MCF-7 is 610.86 ± 4.62, extract ethyl is 1133.16 ± 6.26, extract n-Hexane is 284.98 ± 2.56. IC_{50} cytotoxic effect of extract ethanol on T47D is 343.81 ± 1.85, extract ethyl is 384.43 ± 2.26, extract n-Hexane is 229.63 ± 2.67.
Conclusions: Extract ethanol and extract n-Hexane have the same power of anti-oxidant. For cytotoxic effect extract n-Hexane did better.
Keywords: Sabah snake grass, anti-oxidant, cytotoxic, breast cancer

Identification Of Quercetin On Ethyl Acetate Fraction And Aqueous Fraction Of Binjai (*Mangifera caesia* Jack. Ex. Wall) Leaves Methanol Extract Using HPLC

Putri Indah Sayakti[1*], Hafiz Ramadhan[2]

[1,2]Department of Pharmacy, STIKES Borneo Lestari, Banjarbaru, South Kalimantan, Indonesia
*Email : putriindahsayakti@gmail.com

Abstract

Objective: Binjai (*Mangifera caesia* Jack. Ex. Wall) is one of the endemic Mangifera species in Kalimantan which has nutritious as medicine and a better antioxidant source than *M. indica*. Previous research stated that antioxidant activity and total flavonoid contents in ethyl acetate fraction of Binjai leave methanol extract were found significantly higher as compared to its aqueous fraction. One of the major flavonoids compounds that act as a secondary antioxidant defense system in plants is quercetin. The aim of this study was to investigate the flavonoid compound of quercetin in ethyl acetate fraction and the aqueous fraction of Binjai leaves methanol extract.
Method: Binjai leaves were extracted with methanol solvent by using the soxhlet extraction method and subsequently fractionated to ethyl acetate fraction and aqueous fraction. HPLC (*High-Performance Liquid Chromatography*) method was performed with a flow rate of 1.00 ml/min using normal-phase columns with UV-detector to determine quercetin contents.
Result: Identification results show at the optimized condition with a mobile phase of methanol: phosphoric acid 0.1% (65:35) in wavelength 375 nm, the ethyl acetate fraction had a relatively high content of quercetin than the aqueous fraction. However, there were other flavonoid contents were identified in ethyl acetate fraction and the aqueous fraction of Binjai leaves methanol extract.
Conclusion: The conclusion of this study is highly quercetin content that was identified in the ethyl acetate fraction of Binjai leaves methanol extract contributed in resulting high levels of total flavonoids and produce more powerful antioxidant activity than aqueous fraction.

Keywords: Binjai leaves, ethyl acetate fraction, aqueous fraction, quercetin, HPLC.

Validation Method Analysis of Tannin Based on Tanic Acid-Folin Ciocalteu Using Spectroscopy UV-Vis and Antioxidant Activity Test

Hermawan Purba[1, 4, *)], Helen Anjelina Simanjuntak [1)], Kasta Gurning[1)], Liber Napitupulu[2)], Fransiska Riati Nova Simbolon[3)]

[1](Department of Pharmacy, Sekolah Tinggi Ilmu Kesehatan Senior Medan, Medan Indonesia)
[2](Department of D-III Analis Kesehatan, Sekolah Tinggi Ilmu Kesehatan Senior Medan, Medan Indonesia)
[3](Department of Pendidikan Profesi Bidan, Sekolah Tinggi Ilmu Kesehatan Senior Medan, Medan Indonesia)
[4](Department of Chemistry, Post Graduated Program Universitas Sumatera Utara, Medan Indonesia)
**Email*: hermawanpurba7@gmail.com

Abstract

Objective: Validation method of Tannin analysis by spectroscopy UV-Vis has been conducted. The method of analysis was divided into two phase, namely the extraction tannin from natural product with solid-liquid extraction using maceration and analysis of validation methods parameters.
Methode: The extraction of the natural product sample was performed using ethanol for 48 hours and remaceration of sample with a same time till the extract colourless. The analysis validation methods parameter was occurred and then these methods are applied to determine Tannin concentration in some natural product.
Result: The result showed that the parameters of validation methods has high acceptability as linearity linearity (r2 = 0.9987), limit of detection (LOD) and limit of quantification (LOQ) (0.508 mg/L and 1.538 mg/L), sensitivity (ε = 11.7633 × 104 L mol-1 cm-1), precision (RSD = 0.10-1.83 %) and accuracy (recovery = 80-92 %). The result of analysis of Tannin from Marasi (*Curculigo latifolia*), kunyit (*Curcuma longa*), Patikan Kebo (*Euphorbia hirta*) is 216.47 ppm, 76.9 ppm and 212.87 ppm resepctively.
Conclusion: The result showed that the analysis of Tannin concentration based on Tanic acid-Folin ciocalteu can be applied for natural product.
Keywords: validation method, Tannin, Tanic acid-Folin ciocalteu

Study Comparative Of Coffee Leaves (*Coffea robusta* L. Linden) Phenolic Content By Using Green Extraction

Henny Sri Wahyuni[1*], Sri Yuliasmi[2], Lia Laila[3], Annisa Soraya[4], Devi Riati[5]

[1,2,4,5]Pharmaceutical Chemistry Departement, Faculty of Pharmacy, Universitas Sumatera Utara
[3]Pharmaceutical Technology Departement, Faculty of Pharmacy, Universitas Sumatera Utara
*Email: henny@usu.ac.id

Abstract

Objective: This study was conducted to determine the phenolic content of coffee leaves that extracted by using some kinds of NADES (natural deep eutectic solvent) as a solvent in green extraction with variation time extraction and compared by conventional extraction.
Method: NADES was prepared by mixing of choline chloride-lactic acid (1:1), choline chloride: citric acid (2:1) and compared by conventional extraction using ethanol as a solvent. Coffee leaves were extracted by two kinds of natural deep eutectic solvent (NADES) and using ultrasound extraction. It is compared by conventional extraction using ethanol as a solvent. The total phenolic content was analysed in each extract using the Folin Ciocalteu method.
Result: The total phenolic contents in some extract were expressed in terms of gallic acid equivalent. Total phenolic content was different from one another. The highest concentration of phenols was measured in NADES choline: lactic acid (1:1) at 4 hours extraction are 29,416 GA/g of extract. Ethanol extract contains the smallest concentration of phenols was 7,569 GAE/g extract.
Conclusion: The content of phenolic varied depends on the type of solvent and time extraction—the more time for extraction, the higher phenolic content of extracted coffee leaves. The solvent of green extraction contains more value of phenolic compound than conventional solvent of extraction.

Keywords: Coffee leaves, green extraction, NADES, phenolic content

Synthesis Of Iodo Eugenol Using Chloramine T

Athina Mardatillah[1*], Dadan Suryasaputra[1], Rike Hasanah Kaniaty[1]

[1]Universitas Jenderal Achmad Yani
*Email: athina.mardhatillah@lecture.unjani.ac.id

Abstract

Objective: Eugenol has been investigated as anticancer activity including pro-apoptotic and anti-proliperative properties. Breast cancer its activity as an anticancer is pro-apopotic, whereas in melanoma and colon cancer its anticancer activity is anti-polyperative. Aplication of eugenol as an anticancer is to substitute iodide to eugenol. Research has been conducted which is the first step to increase the anti-cancer activity of eugenol in terms of diagnosis and therapy.
Method: To produce iodide-substituted eugenol, eugenol is reacted with iodide in buffer solvents at pH 5.8.7 and 8 with chloramine oxidizer T varias 40 mg, 50 mg and 60 mg. After being reacted, the synthesis results are continued with continued separation using liquid-liquid extraction (ECC) with the polar aquabidest phase and the non-polar chloroform phase. Furthermore, liquid liquid extraction is monitored using Thin Layer Chromatography (TLC) and purified using Thin Layer Chromatography (TLC). Then the characterization was done using a UV spectrophotometer and an IR spectrophotometer.
Result: The results of organoleptic synthesis are liquid, colorless and chloroform-smelling. The optimal conditions at pH 8 chloramine T 40 mg are based on the characterization of the synthesis results at $\lambda maks$ 263.1 nm with the C-I wave band seen at wave number 534.28 cm-1. In addition there are C-O at wave numbers 1230.58 cm^{-1} and 1303.88 cm^{-1}. There are also aromatic C = C at wave numbers 1452.4cm^{-1}, 1500.62 cm^{-1} and 1527.62 cm^{-1} while C = C alkene is on the wave band 1597.06 cm^{-1}. Next, there is C-H at number 3259.7 3 cm^{-1} then the last is OH intramolecular at wave number 3356.14 cm^{-1}.
Conclusion: Eugenol compounds can be substituted for iodide, with an optimum condition of pH 8 with the amount of chloramine T 40 mg

Keywords: Eugenol, iodide, substitution, chloramine T, TLC

Exploration The Mechanism Of Xanthone Derivate Compound In Injury Recovery Process Based On Systematic In Silico Analysis

Yulanda Antonius[1*], Auw, Natasha Felicia Karnadi[1], Marisca Evalina Gondokesumo[2], Yuana Elly Agustin[3]

[1]Faculty of Biotechnology, University of Surabaya, Surabaya, Indonesia
[2]Faculty of Pharmacy, University of Surabaya, Surabaya, Indonesia
[3]Faculty of Chemical Engineering, University of Surabaya, Surabaya, Indonesia
*Email: yulandaantonius@staff.ubaya.ac.id

Abstract

Objective: The impaired injury recovery process is commonly demonstrated by patient of systemic diseases, such as diabetes mellitus. The recovery process could performed within long period. Xanthone is considered to have a function for injury recovery process. However, the mechanism is still unclear. Therefore, this research aimed to understand the mechanism action of xanthone derivate compounds within the injury recovery process.
Method: The systematic in silico analysis were conducted by using four compounds of xanthone, such as garcinone E, gartanin, gamma-mangostin, and smeathxanthone. Furthermore, corresponding target proteins were identified by using Hitpick V2. Collected target proteins were further analyzed by using STRING and visualized with Cytoscape.
Result: Four compounds of xanthone had several target proteins, including CYP19A1, FAS, IDH1, NFKB1, PTGS1, PTGS2, RELA, SMPD1, SMPD2, XBP1, IKBKB, SOAT1, HSP90AA, MAOA, and ABCG2. Most of protein had precision score higher than 50% based on Hitpick V2 analysis. Protein interaction network of those proteins was formed by 38 nodes and 180 edges by using STRING. Protein network demonstrated that it responsible for wound healing with FDR score 0.009. Moreover, it also responsible for several pathways related to injury recovery process, such as angiogenesis, inflammation response, and cells proliferation with FDR score 0.0002, 6.27e-05, and 0.00028, respectively. Further analysis showed that IL6, MTOR, and STAT3 are the protein-hub within the network based on the degree analysis.
Conclusion: Xanthone derivate compounds contributed to the mechanism of injury recovery process by regulation of angiogenesis, inflammation, and cells proliferation.

Keywords: herbal compound, pathway, target protein

Specific And Non Specific Parameters Standardization Of Ethanolic 96% Extract Of Kersen Leaves (*Muntingia calabura* L.)

Aristha Novyra Putri[1], Revita Saputri[1], Karunita Ika Astuti[1], Ika Puspita Sari[2], Teuku Nanda Saifullah Sulaiman[2]

[1]Department of Pharmacy, Sekolah Tinggi Ilmu Kesehatan Borneo Lestari,, Banjarbaru, Indonesia
[2]Faculty of Pharmacy, Gadjah Mada University, Yogyakarta, Indonesia
Email: aristhanovyra@gmail.com

Abstract

Objective: *Muntingia calabura* L., commonly known as "Kersen" in Indonesia, which is a plant that grow in anywhere. Kersen leaves (*Muntingia calabura* L.) has been used empirically as a medicinal plant because it contains many potential compounds. This study aims is to standardize and Phytochemical screening the ethanolic 96% extract of kersen leaves (*Muntingia calabura* L.).
Method: Standardization of the ethanolic 96% extract of kersen leaves (*Muntingia calabura* L.) consist of two parameters, they are specific and non specific parameters. The specific parameters include organoleptic test, water and ethanol extractable material, identification of compound content. Non specific parameter can be observed based on water content, density extract, total ash content, acid insoluble ash content, mold and yeast contamination, microbial contamination, and metal contamination such as Pb and Cd.
Result: The result showed that the organoleptic properties of ethanolic 96% extract of kersen leaves (*Muntingia calabura* L.) are dark green color, distinctive smell and has a slightly bitter taste. Content of water solvent and ethanol solvent of the ethanolic 96% extract of kersen leaves is 60,67% and 12,1%. Phtyochemical screening results of the ethanolic 96% extract of kersen leaves contains saponins, fenol, flavonoid, steroid. The non specific parameters of the ethanolic 96% extract of kersen leaves are water content of 8,88%; density extract of 0,815 gr/mL, total ash content of 2,27% ± 0,15; acid insoluble ash content 0,05% ± 0,04; mold and yeast contamination of <1,0 x 10^0 CFU/gr; microbial contamination of <1,0 x 10^0 CFU/gr; Pb level of 0,07 ppm ± 0,03 and Cd level of <0,001 ppm.
Conclusion: Based on these result that the ethanolic 96% extract of kersen leaves (*Muntingia calabura* L.) has met the predetermined requirements.

Keywords: *Muntingia calabura* L. leaves, 96% ethanolic extract, standardization, specific parameters, non specific parameters.

Evaluation Of Preliminary Model Diabetes Mellitus Type II In Rat

Tri Widyawati[1*], Siti Syarifah[1], Imam Bagus Sumantri[2], And Hayatun Nufus[3]

[1]Department of Pharmacology and Therapeutic, Faculty of Medicine, Universitas Sumatera Utara, Medan, Indonesia
[2]Department of Pharmacy Biology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia.
[3]Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia
*Email: tri.widyawati@usu.ac.id/tw_rozan@yahoo.com

Abstract

Objective: Diabetes Mellitus (DM) type II can be developed by giving low dose streptozotocin (STZ) in animal model. This study aimed to evaluate the streptozotocin-induced type 2 DM in obesity rats.
Method: Obesity rats (n=24) were induced with low dose of STZ (30 mg/kg) intraperitoneally. The fasting blood glucose level (FBGL) were measured before, 3 and 4 days after STZ injection. Rats were allowed to free access of food and water during observation.
Result: FBGL before STZ injection were 83.54 ± 10.42 mg/dl. After induction, the FBGL increase significantly ($p<0.05$) at day 3 and day 4 observation as follows 151.67 ± 42.71 mg/dl and 317.23 ± 53.05 mg/dl, respectively. There were 7 rats died at day 4.
Conclusion: This preliminary study proved that induction of low dose STZ increased BGL in obesity rats.

Keywords: streptozotocin, low dose, diabetes mellitus, rat

Anticancer Activity Of Ethanol Extract Of *Litsea cubeba* Lour. Fruits Against Htb-182 Lung Cancer Cells

Reny Haryani[1*], Mustafa Ridwan Lubis[1], Denny Satria[2], Ambali Azwar Siregar[3], Mhd. Rafi'i Ma'arif Tarigan[4]

[1]Department of Pharmacology, STIKes Indah Medan
[2]Department of Pharmaceutical Biology, Faculty of Pharmacy, Universitas Sumatera Utara.
[3]Department of Nursing , STIKes Indah Medan
[4]Department of Biology Education, STIT HASIBA
[*]Email: renyharyani11@stikesindah-medan.ac.id

Abstract

Objective: This study was aimed to assess the anticancer activity of ethanol extract (EE) of *Litsea cubeba* Lour. fruit against HTB-182 lung cancer cells.
Method: MTT method was used to determine the percentage of cell viability after treatment and determine IC_{50} value. Cell cycle was analyzed using flow cytometry method.
Results: The IC_{50} value of EE was calculated 33.71 ± 1.25 µg/mL. EE was inhibited cell cycle at G_2-M phase (24.28% and 16.56%) at concentration 15 and 6 µg/mL .
Conclusion: The results of this study indicate that the EE of *Litsea cubeba* Lour. fruit has anticancer activity by inhibiting the cell cycle.

Key words: *Litsea cubeba* Lour. fruit, ethanol extract, Lung cancer, HTB-182.

Preliminary Evaluation Of High Fat Diet In Rats

Tri Widyawati[1*], Siti Syarifah[1], Imam Bagus Sumantri[2], And Hayatun Nufus[3]

[1]Department of Pharmacology and Therapeutic, Faculty of Medicine, Universitas Sumatera Utara, Medan, Indonesia
[2]Department of Pharmacy Biology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia.
[3]Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia
*Email: tri.widyawati@usu.ac.id/tw_rozan@yahoo.com

Abstract

Objective: Obesity model in rats can be conducted by high fat diet administration. This study aim to formulate a high fat diet and evaluate its correlation to rat's bodyweight.
Method: The preparation of high fat diet consist of goat fat as the main source of fat. A total of 35 rats were divided into two groups. Group I: Control (given normal dietary), Group II: formulated high fat diet. The observation was carried for 14 days (2 weeks), the bodyweight measurement was taken in the beginning of observation and every last day of the week.
Result: The formula resulted about 222 g of high fat biscuit per brass. The high fat biscuit has a normal consistency and the odor was a bit stinky but it was just like common rats feed. During 2 weeks of observation about 5442 g of fed was used. The control group had a decrease in body weight and the group that was fat by formulated high fed diet experienced an increase of body weight. **:** There was a statistically significant difference ($p<0.05$) from the base data compare to 2 weeks of feeding formulated high fat diet.
Conclusion: The study concludes that high fat diet formulaed in the presents study could induce obesity in rats.

Keywords: high-fat, diet, obesity, rat

Acute Toxicity Studies of The Combination of The Ethanolic Extract of Andrographis Paniculata Herb, Centella Asiatica Herb, and Curcuma Heyneana Rhizome in Rats

Dadang Irfan Husori[1]*, Marianne[1], Popi Patilaya[2],Audrey Nabila Febrika[1]

[1]Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara, Padang Bulan, Medan 20155, Indonesia
[2]Department of Pharmaceutical Biology, Faculty of Pharmacy, Universitas Sumatera Utara, Padang Bulan, Medan 20155, Indonesia
*Email: dadang@usu.ac.id

Abstract

Objective: The objective of this study was to evaluate the acute toxicity of the combination of ethanolic extract of Andrographis paniculata herb, Centella asiatica herb, and Curcuma heyneana rhizome in rats.
Methods: Acute toxicity study of the combination of ethanolic extract was carried out on 20 female rats using the Toxicological Testing Protocol from Badan POM of the Republic of Indonesia 2014. Rats divided into 4 groups, i.e. control, ethanolic extract combination dose of 500, 2,000, and 5,000 mg/kg of body weight (BW) by single dose with oral administration. Observation of toxic symptoms, BW, relative organ weight, and mortality of rat performed for 24 hours and continued until 14 days for observation of the delayed effect. The animals were sacrificed on the 15th day for blood biochemical, macro pathological, and histopathological examinations of vital organs.
Results: Acute toxicity study results showed that female rats in all groups showed no toxic symptoms. The combination of the ethanolic extract does not affect the development of BW and the relative organ weight of the rat. Histopathology of vital organs of male mice showed that the administration of the ethanol extract caused changes in vital organs. The lethal dose (LD50) of the combination of the ethanolic extract is higher than 5,000 mg/kg BW.
Conclusion: The combination of ethanolic extract of Andrographis paniculata herb, Centella asiatica herb, and Curcuma heyneana rhizome practically non-toxic at a single dose of oral administration with LD50 higher than 5,000 mg/kg BW.

Keywords: acute toxicity, combination extract, Andrographis paniculata, Centella asiatica, Curcuma heyneana

Analysis of Anti Tuberculosis Drug Resistance Using Genexpert at Rsuph Adam Malik Medan

Eva Sartika Dasopang, Fenny Hasanah, Anastasia Armayunita Putri

Faculty of Pharmacy, Universitas Tjut Nyak Dhien, Medan, Indonesia
*Email : evasartikadasopang@yahoo.com

Abstract

Objective: Tuberculosis that is resistant to ATD is a condition in which the TB germs in this case Mycobacterium tuberculosis cannot be killed anymore with anti-tuberculosis drugs. There are five categories of ATD resistance, namely mono-resistance, poly-resistance, multidrug resistance, extensively drug resistance and rifampicin-resistant TB. WHO data for 2015 shows that from 30 countries in the world with a high number of resistant TB, Indonesia ranks 7. This study aims to analyze the resistance of TB bacteria to ATD that occurred in RSUPH Adam Malik Medan.
Method: This research is a descriptive study, where the sample selection is done by cross sectional. The number of samples obtained according to the inclusion criteria was 100 people. Data were taken from the medical records of TB patients with antituberculosis drug resistance from January 2017 to October 2019.
Result: The highest resistance occurred in rifampicin at 100%, isoniazid 93%, ethambutol 22%, streptomycin 18%, ofloxacin 23%, levofloxacin 2% while kanamysin and amycasin 8%. Combination resistance of OAT which is classified as multidrug resistance is 69%, extensively drug resistance is 27% and extensively drug resistance is 4%. Treatment of TB drug resistance using standard regimen 35%, short therapy regimen 32% and the remaining 33% individual guidance.
Conclusion: Based on the comorbidity, hypertension was 1%, HIV 3% and type II DM was 28% and without comorbidities was 68%. There was no significant relationship between sex with resistance (p = 0.180) and comorbidity in the presence of resistance (p 0.994).

Keywords : Hypertension, Tubercolosis, TB

Computational Method of Coriandrin Leaves (*Coriandrum sativum* L.) Anti Inflamatory Agent and Celexocib

Siti Morin Sinaga[1*], Maralaut Batubara[1], Hariyadi Dharmawan Syahputra[1], Henni Cintya[1]

[1]Department of Pharmaceutical Chemistry, Faculty of Pharmacy.
Universitas Sumatera Utara, Medan-20155, Indonesia.
*E-mail: sitimorin@usu.ac.id

Abstract

Objective: Coriander (*Coriandrum sativum L*), which belongs to the *Apiaceae* family, is one of the plants used in traditional medicine. The aims of this study were to evaluate coriandrin, a bioactive constituents that may serve as lead-drug towards inflammatory agent.
Method: Structures were studied to evaluated it's respective predicted bioactivity using *Milliprot* followed by docking study with *Autodock Tools* as for macromolecule obtained from *Protein Data Bank* in 5IKR.pdb file name.
Results: Anti-Inflammatory activity from Coriandrum in each respective bioactivity towards G-Coupled Protein; Kinase Inhibitor, Nuclear receptor, Protease Inhibitor, Ion Channel, Enzyme Inhibitor potential : -0.69; -0.80; -0.89; -0.66; -0.24; -0.24. Computational study performed by *Autodock Tools* against COX2 target macromolecule covalent binding toward Asparagine 330 to obtain inhibition result. As respective Inhibition constant obtained for coriandirn and celexocib (µM) :213.67; 448.97. Free energy obtained (kcal/mol) : -5.01; -8.87
Conclusion: The results reveal from the study showed that bioactive compound from *Coriander sativum* proven to be useful as potential in development in herbal anti-inflammatory agent compare with celexocib

Key words : *Ficus religiosa*, Chemopreventive, In-silico, Phytosterol

Immunomodulatory Effect of 50% Ethanol Extract of *C. mangga* Rhizomes on Cellular Immunity and Its Curcumin Content

Yuandani [1,2*], Sony Eka Nugraha[3], Lia Laila[4], Denny Satria[3], Rony Abdy Syahputra[1], Sasniwiati Sari Hasibuan[1]

[1]Department of Pharmacology, [3]Department of Pharmaceutical Biology, [4]Department of Pharmaceutical Technology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia
[2]Centre of Excellence for Green Chitosan and Advanced Materials, Universitas Sumatera Utara, Medan, Indonesia
*E mail: yuan_dani@yahoo.com, yuandani@usu.ac.id

Abstract

Objectives: The study was conducted to evaluate immunomodulatory effects of *C. mangga* rhizomes on cellular immunity and determine its curcumin content.
Methods: The extract was macerated with 50% ethanol as the solvent. The effect on cellular immunity was investigated by measuring the paw volume to determine the delayed-type hypersensitivity (DTH) response in Wistar rats . Curcumin was identified in extract using a reversed phase high performance thin layer chromatography (RP-HPLC).
Results: The extract at the dose of 400 mg/kg BW increased the paw volume as compared to negative control ($P<0.05$), indicating a strong stimulation on cellular immunity. Quantitative analysis using RP-HPLC revelead the presence of curcumin in plant extract (2.86 µg/mL).
Conclusion: The results indicate the presence of curcumin in *C. mangga* extract contribute to the immunostimulatory activity.

Keywords: *Curcuma mangga*, curcumin, immunomodulatory

In Vivo Antimalarial Activities of Combination Water Extract of Coat Buttons Herbal (*Tridax procumbens* L) and Neem Leaf (*Azadirachta indica* A. Juss)

Faizal Hermanto[1,*], Anna Choerunisa[1]

[1]Departement of Pharmacology, Faculty of Pharmacy, Universitas Jenderal Achmad Yani, Cimahi, West Java, Indonesia
*Email: faizalhermanto@gmail.com

Abstract

Objective: Malaria is still a health problem both in the world and in Indonesia. This is exacerbated by malaria parasites (Plasmodium) that are resistant to existing antimalarial drugs. Some of the plants used for the treatment of malaria are coat buttons herbs (*Tridax procumbens* L.) and neem leaves (A*zadirachta indica* A. Juss). This study aims to assess the antimalarial activity of a combination of coat buttons herbs and neem leaf extract on *Plasmodium berghei*.
Methode: The antimalarial activity test in this study was conducted according to Peters method. Mice infected with *Plasmodium berghei* are then grouped into groups. The control group was given 0.5% Na CMC suspension, the standard group was given chloroquin 20 mg / kg BW and the test group was given combination of extract of coat buttons herbal dose 400 mg / Kg BW and water extract of mimba leaf dose 200 mg / kg BW; combination of extract of coat buttons herbal dose 800 mg / Kg BB and water extract of mimba leaf dose 400 mg / kg BW; the combination of extract of coat buttons herbal dose 1600 mg / Kg BB and water extract of mimba leaf dose 800 mg / kg BW with parameter percentage of parasitemia, percent parasite growth and percentage inhibition parasite.
Result: The results showed that all combined doses showed a decrease in parasite growth when compared with the control group (P <0.05). The percentage value of parasitie inhibit of combination of 1,2 and 3 doses respectively was 40%: 65%; 35%.
Conclusion: The combination of extract of coat buttons herbal dose 800 mg / Kg BW and water extract of mimba leaf dose 400 mg / kg BW has the highest antimalarial activity with a percentage of parasite inhibition of 65%

Keywords: *Plasmodium berghei*, , *Azadirachta indica A.* Juss, *Tridax procumbens* L., Malaria

The Antidiabetic Activity of The Ethanol Extract of The Lime Peel (*Citrus aurantifolia* (Christm) Swingle) on The White Swiss Webster Mice (*Mus musculus*) with Alloxan Method

Adhisty Kharisma Justicia[1*], Ratna Widyasari[2], And Agustina[3]

[1,2,3]Academy Of Phamacy Yarsi Pontianak Indonesia
*Email: adhisty.kharisma@gmail.com

Abstract

The lime peel (*Citrus aurantifolia* (Christm.) Swingle) contains flavonoids that could contribute to an antidiabetic activity

Objective: This study aimed to determine the antidiabetic activity of the ethanol extract of the lime peel.

Method: This study used the alloxan induction method and 24 of the swiss-webster white mice divided into 6 groups namely normal control group, positive control group and the series of extract doses group. Group I (normal control) were no administered by the test sample and group II (positive control) were administered with glibenclamide. Group III (negative control) were administered with aquadest. Group (IV), (V) and (VI) were administered the extracts with the concentrations series of 0,4g / KgBB, 0, 6g / KgBB and 0,8g / KgBB. On the first day of test, 20 mice were intraperitoneal induced by alloxan at a dose of 200 mg / KgBB. On the 7th day after the induction, the mice were administered with the extracts once each day for 14th days. The blood glucose levels were measured on the 1st, 7th, 14th, and 21st days. The research result datas were analyzed using one-way ANOVA and the LSD test to measure the lime peel extract effect in decreasing blood glucose level of mice comparing to glibenclamide as positive control with significant value (P> 0.05).

Result: Based on the results of the study, the percentage of blood glucose level on each group respectively at the dose of 0,4g / KgBB, 0,6g / KgBB, and the dose of 0,8g / KgBB were 46,66%, 55,35%, and 56,13%. The dose of positive control was 46,34%. The one-way ANOVA and the LSD test showed that the lime peel extract decrease the blood glucose level of mice comparing to simvastatin as positive control with significant value (P> 0.05).

Conclusion: The conclusion of the study is the ethanol extract of the Lime Peel has antidiabetic activity on mice.

Keywords: Lime peel (*Citrus aurantifolia (Christm.)* Swingle), antidiabetic activity, alloxan

Cytotoxicity Effect Of Ethanol Extract Of *Litsea cubeba* Lour. Fruits Towards Her-2 Overexpressed-Cancer Cells HCC 1954

Aminah Dalimunthe[1*], Panal Sitorus[2], Mahatir Muhammad[2], Denny Satria[2]

[1]Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara, Jl. Tri Dharma No.5, Kampus USU, Medan, Sumatera Utara, Indonesia 20155.
[2]Department of Pharmaceutical Biology, Faculty of Pharmacy, Universitas Sumatera Utara, Jl. Tri Dharma No.5, Kampus USU, Medan, Sumatera Utara, Indonesia 20155.
*Email: aminah@usu.ac.id

Abstract

Objective: This study was carried out to investigate the cytotoxicity activity of ethanol extract of *Litsea cubeba* Lour. fruits towards HCC 1954 cell lines.
Methods: *Litsea cubeba* Lour. fruits powder was extracted by maceration method with ethanol 96% solvent. Cytotoxicity activity was analyzed using MTT method.
Results: The inhibitory concentration (IC_{50}) of ethanol extract (EE) of *Litsea cubeba* Lour. fruits was 77.85 ± 1.12 µg/mL towards HCC 1954 cell lines.
Conclusion: The results reveal that ethanol extract (EE) of *Litsea cubeba* Lour. fruits has potential as cytototoxic agent.

Keywords: Cytotoxicity, *Litsea cubeba* Lour., fruits, ethanol extract, HCC-1954 cells.

Cytotoxicity Activity Of Combination Fraction Of Chromolaena Odorata L Leaves And Phaleria Macrocarpa Fruits Against 4t1 And MCF-7 Breast Cancer Cells

Ahmad Syukur Hasibuan

Inkes Medistra Lubuk Pakam
*Email: syukurhasibuan18@gmail.com

Abstract

Objective: to investigate the cytotoxic activity toward 4T1 and MCF-7 cell lines of combination fraction of *Chromolaena odorata* L. leaves and *Phaleria macrocarpa* fruits.
Method: *Chromolaena odorata* L. leaves and *Phaleria macrocarpa* fruits powder were extracted by maceration with n-hexane, ethanol and ethyl acetate solvent. The in vitro study used MTT method toward 4T1 and MCF-7 cell lines.
Result: The Inhibitory Concentration 50% (**IC_{50}**)were 232.30 ± 4.12; 210.73 ± 3.2351; 51.02 ± 1.16 µg/mL for 4T1 and 92.74 ± 2.09; 241.65 ± 3.85; 54.37 ± 0.28 µg/mL for MCF-7 cell lines respectively.
Conclusion: The results reveal that treatment of n-hexane, ethylacetate and ethanol fraction combination of Chromolaena odorata L. leaves and Phaleria macrocarpa fruits had cytotoxic activity to inhibit MCF-7 and T47D cancer cells growth.

Keywords: cytotoxic activity, *Chromolaena odorata* L, *Phaleria macrocarpa, breast cancer.*

Sedative Effectiveness Test Of Ethanol Extract Of Lemongrass Leaves (*Cymbopogon nardus* (L.) Rendle) Against Male Mice (*Mus musculus*)

Muharni Saputri*1, Yessi Febriani2, Suci Armayani3

Universitas Tjut Nyak Dhien, Medan – Indonesia
*Email: muharnisaputri16@gmail.com

Abstract

Objective: One plant that has a sedative effect is fragrant lemongrass (Cymbopogon nardus (L.) Rendle). In general, plant compounds that are thought to have sedative properties are alkaloids, flavonoids, saponins, triterpenoids and tannins. The fragrant lemongrass leaves that are thought to be sedatives are citronellal, geraniol and essential oils.
Method: This research is an experimental study with percolation extraction and then the sedative effect test was carried out using the Traction test method using 30 male mice (Mus musculus) and divided into 5 groups. Group I (negative control) CMC 0,5%, group II (positive control) diazepam, group III, IV, V (treatment) ethanol extract of fragrant lemongrass leaves (Cymbopogon nardus (L.) Rendle) dose of 0,4 g / kg BW, 0,8 g / kg BW, 1,6 g / kg BW. Giving to mice orally and observing the return reflex, turning time and time falling in mice. The sedative effect test was statistically analyzed using the Duncan SPSS 21.0 Post-Hoc test method
Result: Observations on the body return reflex test in the treatment group showed a change in qualitative parameters at each observation. The return time parameter for the treatment group showed a sedative potential seen from the turning time of 14.1 seconds, while in the last parameter for fall time, group IV (concentration 0.8 g / Kg BW) had the fastest fall time. compared with doses III and V, but did not exceed the control group (II).
Conclusion: Ethanol extract of lemongrass leaves (Cymbopogon nardus (L.) Rendle) has a sedative effect on mice. The most effective dose for the sedative effect on mice is the ethanol extract of fragrant lemongrass leaves (Cymbopogon nardus (L.) Rendle) at a dose of 0.8 g / kg BW.

Keywords: Sedative, Lemongrass leaves, Diazepam, Post-hoc duncan, Traction test.

Antidepressant Activity Of Curcuma heyneana: Increasing Locomotor Activity And Decreasing Immobility Time In Mice

Marianne Marianne[1,2*], Poppy Anjelisa Zaitun Hasibuan[1,2], Sartika Ramadhayani[3],Rini Afrilia Siagian[3], Ayunda Safira[3]

[1]Departement of Pharmacology Pharmacy, Faculty of Pharmacy, Universitas Sumatera Utara, Medan 20155, Indonesia
[2]Nanomedicine Centre, Universitas Sumatera Utara, Medan 20155, Indonesia
[3]Undergraduate students, Faculty of Pharmacy, Universitas Sumatera Utara, Medan 20155, Indonesia
*Email: marianne80@usu.ac.id

Abstract

Objective: The resistance of depression therapy remains high, therefore the alternative therapy must be carried out. *Curcuma heyneana* is a plant of Zingiberaceae. Traditionally, it has been used as a sedative, however, the activity as antidepression has never been conducted. Therefore this research was aimed to investigate the antidepressant activity of *C. heyneana*.
Method: The research was initiated with maceration of *C. heyneana* followed with characterized and determined the secondary metabolites of dry leaves and extract. Chronic mild stress for three weeks was used to induce depression, followed by administration of the extract at the doses of 50, 100 and 200 mg/kg for 1 week. Evaluation of antidepression carried out using tail suspension test (TST), forced swim test (FST) and open field test (OFT). Sertraline at the dose of 6,5 mg/kg was used as a comparator. Observations include increasing the locomotor activity and decreasing immobility time. Data were analysed statistically using Multivariate Analysis of Variance (MANOVA) followed by Least Significant Difference (LSD).
Result: The result revealed that stress induction for three weeks cause decreasing in locomotor activity including swimming and climbing and also increasing immobility and hyperactivity. The administration of the extract at the doses of 100 and 200 mg/kg revealed the activity to decrease the duration of immobility in tail suspension test, increasing climbing at the open field test, decreasing hyperactivity at open field test, preventing the decreasing of the duration of swimming and climbing at the forced swimming test ($p<0.05$).
Conclusion: Extract of *C. heyneana* at the doses of 100 and 200 mg/kg has antidepressant activity by increasing locomotor activity and decreasing immobility time in mice.

Keywords: antidepressive, *Curcuma heyneana*, immobility, tail suspension test, forced swim test, open field test.

Antisecretory Effect Of Extract Combination Of Pegagan (*Centella asiatica*) And Sambiloto (*Andrographis paniculata*) Leaves Ethanolic Extract On Pyloric Ligated-Induced Gastric Ulcer In Rats

Dadang Irfan Husori[1]*, Popi Patilaya[2], Desy Ariyanti Panjaitan[1], Izza Armadina Shulha[1]

[1]Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara, Padang Bulan, Medan 20155, Indonesia
[2]Department of Pharmaceutical Biology, Faculty of Pharmacy, Universitas Sumatera Utara, Padang Bulan, Medan 20155, Indonesia
*Email: dadang@usu.ac.id

Abstract

Objective: The aim of this study was to investigate the antisecretory effect of the combination of pegagan and sambiloto leaves ethanolic extracts on pyloric ligation-induced gastric ulcers.
Method: Gastric ulcers were induced by the pyloric ligation method. Total of 32 animals was grouped randomly into 8 groups and pre-treated with test suspensions for 7 days. The animals were starved for 48 hours having access to water before the pyloric ligation. The animals were sacrificed 19 hours after the pyloric ligation and the stomach was isolated for macroscopic, microscopic, and gastric secretion studies.
Results: Combination of pegagan and sambiloto leaves ethanolic extracts doses 100:75, 100:150, 200:75 and 200:150 mg/kg BW showed antisecretory effect against pyloric ligation induced ulcers. There was a significant difference ($p<0,05$) between combination extracts with negative and induction control group in ulcer score, ulcer index, mucus index, volume, pH of gastric secretion, and acidity, also showed well enough of the healing effect 78,08%.
Conclusion: The results suggested that the combination of pegagan and sambiloto leaves ethanolic extracts showed an antisecretory effect against pyloric ligation-induced ulcers. The most effective combination doses are 200:150 mg/kg BW.

Keywords: antiseretory effect, combination, *Andrographis paniculata*, *Centella asiatica*, gastric ulcers, pyloric ligation.

Toxicological Safety Evaluation In Acute Studies Of *Artocarpus altilis* Leaves Ethanolic Extract

Dadang Irfan Husori[1]*, Urip Harahap[1], Aminah Dalimunthe[1], Syafruddin Ilyas[2]

[1]Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara, Padang Bulan, Medan 20155, Indonesia
[2]Department of Biology, Faculty of Mathematics and Natural Sciences, Universitas Sumatera Utara, Padang Bulan, Medan 20155, Indonesia
*Email: dadang@usu.ac.id

Abstract

Objective: The aim of the study is to evaluate the acute toxicity of *Artocarpus altilis* leaves ethanolic extract after oral administration in female rats.
Methods: Acute toxicity study perform with 20 female rats underwent oral administration of 500, 2,000, and 5,000 mg of the extract/kg of body weight and control group, 5 rats of each group respectively. The observation of animals' general toxicological behavior and mortality performed for first 24 hours. The observation of acute toxicological delayed effect continued until 14 days. The rats were sacrificed on the 15th day and body weight, relative organ weight, biochemical, hematologic parameters, and histopathological of the vital organs were analyzed.
Results: No evidence of toxicity was observed in the female rats after acute exposure of *Artocarpus altilis* leaves ethanolic extract. The extract does not affect to body weight and the relative organ weight of the rat. Histopathology of vital organs of female rats showed that the administration of the extract not caused changes in vital organs. The lethal dose of 50 (LD50) of the extract is higher than 5,000 mg/kg BW.
Conclusions: The oral administration of Artocarpus altilis leaves ethanolic extract can be considered safe and showed no distinct toxicity or side effects in this study.

Keywords: toxicology**,** acute toxicity, *Artocarpus altilis,* ethanolic extract, female rats

Gastroprotective Effects Of Bangun-Bangun (*Plectranthus amboinicus*) Leaves Ethanolic Extract Against Water-Immersion And Cold-Restraint Stress-Induced Gastric Ulcer In Rats

Dadang Irfan Husori*, Fitri Rizki Ananda

Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara, Padang Bulan, Medan 20155, Indonesia
*Email: dadang@usu.ac.id

Abstract

Objective: The aim of the study was to determined the gastroprotective effect of the Bangun-bangun (Plectranthus amboinicus) leaves ethanolic extract on stress-induced gastric ulcer animal model.
Methods: Gastroprotective assessment using the combination of water immersion stress-method and cold-resistant stress method. The rats were placed into restrainer then immersed in water at 17°C for 8 hours. Then the rats were placed in a cold room at 4°C for 2 hours. The rats were sacrificed and the stomach was isolated for macroscopic, microscopic, and gastric fluid secretion studies.
Results: Macroscopic observations showed the percent inhibition of ulcers from the Bangun-bangun leaves ethanolic extract doses of 100, 200, and 400 mg/Kg BW have no significant difference with ranitidine as positive control group. The gastroprotective effect were dose dependent manner. Microscopic observation showed the extract restored the cohesion of gastric mucosal cells that have been damaged by stress-induced erosion. Gastric acid secretion showed no significant difference between the extract group with induction group. This indicated that the extract has no antisecretory effect.
Conclusion: The results suggested that Bangun-bangun leaves ethanolic extract has gastroprotective effect on stress-induced gastric ulcer.

Keywords: Gastroprotective, Bangun-bangun, Plectranthus amboinicus, gastric ulcer, stress method

Gastroprotective Effect Of Ethanolic Extract Of Remek Daging (*Strobilanthes alternata*) Leaves Against Stress-Induced Gastric Mucosal Lesions In Rats

Dadang Irfan Husori*, Tria Andria

Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara, Padang Bulan, Medan 20155, Indonesia
*Email: dadang@usu.ac.id

Abstract

Objective: This study aimed to examine the effectiveness of remek daging (*Strobilanthes alternata)* leaves ethanolic extracts as gastroprotective against stress-induced gastric mucosal lesions in rats
Methods: The animal was grouped randomly into 6 groups (normal, vehicle and positive control, extract dose of 100, 200, and 400 mg/kg BW. The animal has pre-treated with test suspensions for 7 days. The animals were starved for 36 hours having access to water. Gastroprotective assessment using the combination of water immersion (17°C for 8 hours) and cold-resistant (4°C for 2 hours). The animals were sacrificed and the stomach was isolated for macroscopic, microscopic, and gastric secretion studies.
Results: Macroscopic observations showed that the extract reduced the number, score and area of ulcers and increased the percentage of ulcer inhibition which was directly proportional to increasing the dose. Histopathological assessment showed that an extract protected mucosal cells from erosion. The extracts have also decreased gastric fluid volume, total gastric acidity, and raised gastric pH. Extracts doses of 200 and 400 mg/kg BW were the most effective in healing gastric ulcers with 85% and 93% percent inhibition of ulcers, respectively.
Conclusion: The results suggested that (*Strobilanthes alternata)* leaves ethanolic extracts has gastroprotective effect against stress-induced gastric mucosal lesions in rats.

Keywords: Gastroprotective, *Strobilanthes alternata*, remek daging, gastric ulcer, stress method

Evaluation Of The Anti-Ulcer Activity Of The Ethanolic Extract Of Remek Daging (*Strobilanthes alternata*) Leaves On Pyloric Ligation Induced-Gastric Ulcer

Dadang Irfan Husori*, Agatha MargaRET

Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara, Padang Bulan, Medan 20155, Indonesia
*Email: dadang@usu.ac.id

Abstract

Objective: To investigate the antiulcer activity of ethanolic extract of remek daging (*Strobilanthes alternata*) leaves on pyloric ligation induced-gastric ulcer
Methods: The present study was carried by pylorus ligation induced ulcer models in rats. The antiulcer activity of the extract (100, 200 and 400 mg/kg BW p.o. for 7 days) was compared with standard drugs (Ranitidine 27 mg/kg BW). The animals were starved for 48 hours before the pyloric ligation. The animals were sacrificed 19 hours after the pyloric ligation. In pyloric ligation induced ulcer model, the studied parameters were gastric volume, pH, total acidity, free acidity, and ulcer index.
Results: Macroscopic observations showed that the extract reduced the number, score and index of ulcers, and increased the percentage of ulcer inhibition. Effects increase depending on the dose. Histopathological test showed that 200 and 400 mg / kg BW extracted doses to protect mucosal cells from lesions. The secretion parameter showed that the extract decreased the volume of gastric fluid, the total acidity of the stomach, and increased the pH of the stomach.
Conclusion: The results of the study indicate that the *Strobilanthes alternata* leaves ethanolic extracts has anti-ulcer activity.

Keywords: Antiulcer effect, Pylorus ligation, *Strobilanthes alternate,* ethanolic extract

Anticancer Activity Of *Plectranthus amboinicus* Leaves Ethanolic Extract Against Widr Colorectal Cancer

Kesaktian Manurung[1,2], Delmi Sulastri[3,*], Nasrul Zubir[3], Syafruddin Ilyas[4]

[1]Department of Biomedical Sciences, Faculty of Medicine, Andalas University, Limau Manis, Pauh, Padang, Sumatera Barat, Indonesia, 25163
[2]Department of Pharmacy, Faculty of Pharmacy and Health Sciences, Sari Mutiara Indonesia University, Helvetia Tengah, Medan Helvetia, Medan, Sumatera Utara, Indonesia, 20124
[3]Department of Nutrition, Faculty of Medicine, Andalas University, Limau Manis, Pauh, Padang, Sumatera Barat, Indonesia, 25176
[4]Department of Biology, Faculty of Mathematic and Natural Sciences, Sumatera Utara University, Padang Bulan, Medan Baru, Medan, Sumatera Utara, Indonesia, 20155
*Email: delmisulastri@yahoo.com

Abstract

Objective: To determine the effect of *Plectranthus amboinicus* leaves extract as a complementary therapy in the treatment of colorectal cancer in in vitro testing on WiDr colorectal cancer cells through testing cytotoxic activity, selectivity, and synergistic activity.
Method: The ethanol extract of the leaves obtained was tested for anticancer activity against colorectal cancer WiDr cells and normal Vero cells in order to obtain Inhibiton Concentration 50 (IC50) and Selectivity Index (SI) values. The *Plectranthus amboinicus* leaves ethanolic extract was continued for Combination Index (CI).
Result: Cytotoxic testing on WiDr colorectal cancer cells of *Plectranthus amboinicus* leaves ethanolic extract gave inhibitory concentration 50 (IC50) values of 39.199 µg/mL. The selectivity index (SI) values of *Plectranthus amboinicus* leaves ethanolic extract was 9.727. The combination of the *Plectranthus amboinicus* leaves ethanolic extract and 5-fluorouracil gave a combination index of less than 1 (combination index <1).
Conclusion: The *Plectranthus amboinicus* leaves ethanolic extract has strong cytotoxic activity and has high selectivity against WiDr colorectal cancer cells. The combination of the *Plectranthus amboinicus* leaves ethanolic extract and 5-fluorouracil has a synergistic effect.

Keywords : *Plectranthus amboinicus*, Anticancer, In Silico, In Vitro, Cytotoxic, Combination, Cell Cycle, Apoptosis, Cyclooxygenase-2

The Wound Healing Effect of Hydrolyzed Virgin Coconut Oil Ointment Towards Rats with Excision Wound

Jansen Silalahi[1*], Yuandani[2], Ibrenna Glorius Manik[1], Denny Satria[3]

[1]Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Universitas Sumatera Utara.
[2]Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara.
[3]Department of Pharmaceutical Biology, Faculty of Pharmacy, Universitas Sumatera Utara.
[*]Email: jansen@usu.ac.id

Abstract

Background: Wound healing is a complex process involving many cells consisting of four phases namely hemostasis, inflammation, proliferation, and remodeling. Coconut oil as triglyceride does not have antimicrobial and antiviral activities, but when VCO is partially hydrolyzed, it will genarate combination of free fatty acids and monoglycerides which is proved to be antibacterial and therefore could be more active in wound healing process.
Objective : The aim of this study was to examined the healing activity of hydrolyzed VCO (HVCO) on excision wound in rats.
Method: The sample used was Virgin Coconut Oil (VCO). VCO was partially hydrolyzed using lipase from *Rhizomucor miehei* (active on sn-1,3 position) to produce hydrolyzed VCO (HVCO) composed of free fatty acids and 2-monoglycerides. The ointment was formulated using basic formula of ointment with 5% concentration of HVCO. The wound was made by excision back part of rats with area 2 cm x 2cm and the ointment was given every day for 21 days. Betadine® ointment was used as positive control.
Results: The better closure percentage of wound healing was showed on HVCO 5% ointment if compared with betadine® ointment ($p < 0.05$).
Conclusion: The results reveal that the HVCO have wound healing activity faster than standard drug.

Key words: HVCO, ointment, wound healing, excision wound, rats.

Cytotoxic Compounds From Artocarpus Elasticus Reinw. Ex Blume Leaves

Sofa Fajriah[1*], Megawati Megawati[2], Akhmad Darmawan[3]

[123]Research Center for Chemistry - Indonesian Institute of Sciences LIPI
*Email: sofafajriah@gmail.com

Abstract

Objective: In our ongoing research of anticancer studies from Mekongga forest plants, South East Sulawesi, we isolated apigenin and 6-prenyl apigenin from the leaves of *Artocarpus elasticus* Reinw. Ex Blume for anticancer activities.
Methods: Their chemical stuctures were determined using several spectroscopic methods. In the bioassay examining cytotoxicity against cancer cells, both compounds showed cytotoxicity against P388, MCF-7 and T47D cancer cell lines.
Results: The IC_{50} values of 6-prenyl apigenin were 6.65, 19.75 and 313.61 mg/mL higher than apigenin with IC_{50} 14.13, 40.35 and 434.20 mg/mL, respectively.
Conclusion: These results demonstrated that these compounds are promising candidates as anticancer agents.

Keywords: *Artocarpus elasticus* Reinw. Ex Blume, apigenin, 6-prenyl apigenin, anticancer

Histopathological Changes Of Liver Rats After A Single Dose Administration Of Ethanolic Extract Of *Croton argyratus* Blume Stem Bark

Nurlely[1*], Noor Cahaya[1], Valentina Meta Srikartika[1], And Dini Marlina[1]

[1]Study Programme of Pharmacy, Faculty of Mathematics and Natural Sciences, Lambung Mangkurat University
*Email: nurlely@ulm.ac.id

Abstract

Objective: This study aims to evaluate liver histopathological changes in rats after administered with ethanolic extract of *Croton argyratus* Blume in male rats.
Method: The male rats were randomly divided into 5 groups of 5 rats each namely control (vehicle) and 4 treatment groups which received a single dose of ethanolic extract of *C. argyratus* Blume stem bark (500, 5,000, 15,000 and 20,000 mg/kg BW). All animals were monitored for 14 days and on day 15, livers were collected for histopathological examination
Result: There was no mortality sign in 24 hours in all groups. Body weight and liver organ weight revealed no significant difference in control and treatment groups ($P<0.05$). There were significant abnormal histopathological changes ($P<0.05$) of degeneration and bleeding in all treatment groups compared with control. Meanwhile, no significant difference ($P<0.05$) of infiltration of inflamed cells and necrosis observed in a dose of 500 mg/kg BW compared with control.
Conclusion: Therefore, it can be concluded that ethanolic extract of Croton argyratus Blume may induce liver toxicity in male rats.

Keywords: liver toxicity, *C. argyratus* Blume, liver histopathology

Diuretic Activity From Nanoparticles of Ekor Naga Leaves (*Rhaphidophora pinnata* (L.F.) Schott)

Masfria Masfria[1*], Marianne[2], Yade Metri Permata[1], Sri Mulyani[1]

[1]Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia
[2]Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia
*Email: masfria@usu.ac.id

Abstract

Objectives: The objective of this research is to investigate the diuretic activity of nanoparticle *R. pinnata* nanoparticles.
Methods: *R. pinnata* dry leaves were made into nanoparticles with high-speed milling. Herbal was then tested the diuretic activity by using Wistar rats. The doses of testing were 100, 150 and 200 mg/kg BW. Furosemide dose of 21.6 mg/kg BW was used as a comparative group. The parameters were urine volume, and electrolytes contents including sodium, potassium and calcium.
Result: The result showed that 24 hours total urine volume from rats were given *R. pinnata* dose of 100, 150 and 200 mg/kg BW respectively as follow: 6.050±1.3301 mL; 10.500±1.9149 mL; 18.500±4.7958 mL, while normal control was 7.475±1.3200 mL and furosemide was 11.750±1.7078 mL. Therefore only *R. pinnata* doses of 150 and 200 mg/kg BW gave the diuretic effect that significantly different to normal control group ($p<0.05$). The results of electrolyte measurements showed an increase in sodium, potassium, chloride as well as calcium levels ($p<0.05$) at each dose administration of *R. pinnata* nanoparticle. The highest electrolyte yield is shown by a dose of 200 mg/kg BW.
Conclusion: *R. pinnata* nanoparticles with the mechanism of action increasing urine flow (diuretics) can be potential as herbal medicines and phytopharmaca to treat nephrolithiasis.

Keywords: *Rhaphidophora pinnata,* diuretic, nanoparticle

Development and in Vitro Evaluation of Mucoadhesive Microgranules of Cinnamon Bark Extract with Variation of Chitosan

Erni Rustiani[1], Ike Yulia Wiendarlina[2], Intan Awaliyah[3]

Program Studi Farmasi, Fakultas MIPA, Universitas Pakuan, Bogor
Email: ernirustiani@unpak.ac.id

Abstract

Objective: Cinnamon bark contains cinnamaldehyde, which is an active metabolite that can reduce glucose levels in the blood. Natural active components generally have low solubility in fat with low bioavailability in the body. Therefore development is needed to increase their absorption. The aim of this study was to formulate and in vitro evaluate chitosan mucoadhesive micro granules with cinnamon bark extract.
Method: The wet granulation method using chitosan as a polymer used to make micro granules. The formulas utilized various concentrations chitosan namely 30% (F1), 35% (F2), 40% (F3), and 45% ((F4) and without chitosan (F0). The evaluation of mucoadhesive micro granules includes moisture content, angle of repose, flowability, wash-off, morphological test, and particle size. The cinnamic acid levels in the mucoadhesive micro granules were determined before and after the preparation.
Result: The wash-off test results showed that the mucoadhesive micro granules of cinnamon bark extract with a concentration of polymer chitosan 45% (F4), the stomach's adhesive were 59.28%, and the intestine was 100%. The granule shape and morphology test results using the Scanning Electron Microscope (SEM) device obtained a 129.5 - 360.2 µm granule size.
Conclusion: The obtained results indicate that chitosan is a suitable for developing a micro granules dosage form of cinnamon bark extract for oral delivery.

Keywords: Cinnamon, chitosan, micro granule, mucoadhesive, wash-off.

Formulation and Physical Evaluation Svae Tablet From Waste of Gong-Gong Snipe Shells *(Strombus turturella)*

Suci Fitriani Sammulia [1], Suhaera[2*], Anggun Setyarini[3]

[1,2,3]Institut Kesehatan Mitra Bunda , JL.Seraya No 1, 29444, Batam
*Email: heraemilsalim1691@gmail.com

Abstract

Objective: Snail Gong-gong (*Strombus Turturella*) is a typical food of the people Riau Islands. The processed food produces the waste of a well-utilized shell. The main composition of the gong-gong slug is calcium carbonate ($CaCO_3$). With the content of calcium, the waste shell of gong-gong can be used as raw material for the preparation of pharmaceutical preparations such as suction tablets. This study aims to obtain the formulation of a lozenges from the waste of gong-gong shell with good physical properties.
Methode : A lozenges is made by a method of wet granulation in three formulas with variations in the concentrations of the case of the F1 gong-gong 15%, F2 30%, and F3 45%. The granules and tablets are evaluated.
Result : The results of the granule evaluation showed that the granule produced from the three formulas has fulfilled the requirements, the results of the tablet evaluation showed on organoleptic test, size uniformity, hardness, disintegration time of all three formulas have fulfilled good lozenges requirements. While the weight uniformity of F1 is not eligible, the friability test F1 and F2 are not eligible.
Conclusion:The results of this study showed that the gong-gong snail shells can be formulated into a lozenges and have good physical properties.

Keywords: gong-gong snail shells (*Strombus Turturella*), granules, lozenges tablet, calcium.

Co-Crystal Dexibuprofen-Nicotinamide With Improvement Of Mechanical Properties

Fikri Alatas[1*], Wulan Anggraeni[1], And Adelia Pinky Dwi[1]

[1]Pharmaceutics Group, Faculty of Pharmacy, Universitas, Jenderal Achmad Yani, Jl. Terusan Jenderal Sudirman, Cimahi, Indonesia
*Email: fikri.alatas@lecture.unjani.ac.id

Abstract

Objective: Dexibuprofen (DXI) is a non-steroidal anti-inflammatory drug (NSAID) which has poor mechanical properties (flowability and tabletability) and low melting point. Alteration of the crystal structure through the formation of co-crystal can improve the less favorable physicochemical properties of the active pharmaceutical ingredient (API). The aim of this study was to make a co-crystal between DXI and nicotinamide (NCT) and to compare its mechanical properties with pure DXI.
Methods: The ultrasound-assisted solution co-crystallization (USSC) method with ethanol solvent was used to make DXI-NCT co-crystal. The DXI-NCT co-crystal was characterized using a polarization microscope, differential scanning calorimetry (DSC), and powder X-ray diffraction (PXRD). The flowability studies were conducted by comparing the angle of repose, flow properties, and Carr's compressibility index of the DXI-NCT co-crystal and pure DXI, while the tabletability studies were carried out by comparing their tensile strength and elastic recovery.
Results: The crystal morphology of the DXI-NCT co-crystal was different from that of pure DXI and NKT. The DSC thermogram showed that the melting point of the DXI-NCT co-crystal (84.0°C) was between the melting points of DXI (53.1°C) and NCT (132.0°C). The PXRD pattern of USSC result was different from pure DXI and NCT and this indicates the formation of a co-crystal DXI-NCT. The flowability study showed the DXI-NCT co-crystal had a fairly good angle of repose, flow properties, and Carr's compressibility index, while pure DXI had a poor flowability. The result of tensile strength and elastic recovery tests showed the DXI-NCT co-crystal had better tabletability than pure DXI.
Conclusion: Thus, DXI and NCT can co-crystallize by the USSC method which has better melting point and mechanical properties than pure DXI.

Keywords: Dexibuprofen, nicotinamide, co-crystal, mechanical properties, melting point

Granules Formulation Of Guava Leaves With Purple Sweet Potatoes And Guava Leaves With Cinnamon As Functional Beverages

Nikmatul Ikhrom Eka Jayani[1*], Bill Lewaraja Salawane[2], Hendro Yonan Pelopolin[3], Karina Citra Rani[4]

[1] Departement of Biology Pharmacy, Faculty of Pharmacy, University of Surabaya
[2,3] Faculty of Pharmacy, University of Surabaya
[4] Pharmaceutical Department, Faculty of Pharmacy, University of Surabaya
*Email: nikmatul.ikhrom@staff.ubaya.ac.id

Abstract

Objective: The study aims to obtain a functional beverage of granules that fulfill the specifications.
Method: The composition of guava leaf and purple sweet potatoes in Formula 1 (3%: 2%), 2 (3%: 2.5%) and 3 (3%: 3%); guava leaf and cinnamon in Formula I (3%: 1%), II (3%: 2%) and III (3%: 3%). Formulation of granule was conducted by wet granulation methods. Granule evaluation including characteristics of the granule (organoleptic, moisture content, flow rate, angle of repose, bulk density, tapped density, compressibility index, Hausner's ratio and % fines). Evaluation granules characteristic after reconstitution is also carried out covering viscosity, pH, and volume of sedimentation.
Result: The results of this study indicated that granules of guava leaf and purple sweet potato fulfill the specifications. Result showed % fines 1,52±0,55% - 6,04±0,06%; moisture content 1,51±0,10% - 2,06±0,12%; flow rate 9,34±0,77 - 10,89±0,32 g/seconds; angle of repose 29,64±0,67^0- 30,70±1,55^0; compressibility index 16,19± 0,82% - 17,32±3,43%; Hausner's ratio 1,20±0,01 - 1,22±0,03. Evaluation granules characteristic after reconstitution showed that viscosity 40,00 ± 0,00 cPs - 50,00±10,00 cPs and pH 5,61±0,01 - 5,88±0,02. The results of guava leaf and cinnamon showed that % fines 1,63±0,49% - 1,85±0,81%; moisture content 0,71±0,10% - 1,06±0,02%; flow rate 7,93±0,44 - 8,61±0,74 g/seconds; angle of repose 20,95±1,56^0 - 31,17±1,29^0; compressibility index 19,56±1,32% - 20,37±1,32%; Hausner's ratio 1,24±0,02 - 1,25±0,02. Evaluation granules characteristic after reconstitution showed that viscosity 43,33±5,77 cPs - 50,00 ± 0,00 cPs and pH 5,32±0,02 - 5,42±0,02.
Conclusion: All formula of guava leaf and purple sweet potato fulfill the specifications and all formula of guava leaf and cinnamon granules didn't fulfill the specifications.

Keywords: Guava leaves, purple sweet potatoes, cinnamon, functional beverage

Cream Formulation Of Marine Sponges From Natuna (*Aplysina fistularis*) Extract And Antioxidant Activity Test Using The Dpph (*1.1-Diphenyl-2-Picrylhydrazyl*) Method

Delladari Mayefis[1*], Sri Hainil[2]

[1,2]Mitra Bunda Health Institute, Batam, Indonesia
*Email: dellamayefis@gmail.com

Abstract

Marine sponge Aplysina fistularis is one of the biota components that make up coral reefs which has bioactive potential and contains alkaloids, terpenoids, steroids, phenolics, and other compounds that are effective as antioxidants.
Objective: This study aims to test the antioxidant activity of the sea sponge methanol extract cream formulation taken in Natuna waters using the DPPH method and to evaluate the cream preparation using physical test parameters.
Method: The sample was extracted by maceration using methanol as a solvent. Cream formulations were made with various concentrations of 0.5%, 1%, 1.5%, 2%. Antioxidant activity testing was carried out quantitatively with the DPPH method. The IC_{50} value in determining the antioxidant activity was determined using a UV-Vis spectrophotometer at the maximum wavelength.
Result: The results showed that the cream has fairly good stability marked by no change after doing the cycling test, and the results of the antioxidant cream test results in an IC_{50} value of 52.91 ppm and vitamin C as a positive control of 43.51 ppm.
Conclusion: It can be concluded that the Aplysina fistularis marine sponge extract cream preparation has a fairly strong antioxidant activity which is indicated by the IC_{50} value in the range of 50-100 ppm.

Keywords: Cream Formulation, Marine Sponge, Antioxidant Activity.

The Development of *Moringa oleifera* Leaf Cereal Using Full Cream Milk and Soy Milk As Fillers

Karina Citra Rani*, Nani Parfati, Tan Sherly Evelina, Cherry Christianto

Department of Pharmaceutics, Faculty of Pharmacy, University of Surabaya, Jl. Raya Kalirungkut, Surabaya 60293, Indonesia
*Email: karinacitrarani@staff.ubaya.ac.id

Abstract

Objective: *Moringa oleifera* leaves powder can be fortified in several food products to improve nutritional values and to gain health benefits. In this study, *Moringa oleifera* leaves powder was developed into four cereal formulas using several combinations of xanthan gum concentration (1.5% and 2%) and the type of milk as filler (full cream and full cream-soy milk). This study aimed to optimize the effect of xanthan gum concentration and type of milk on the physical and chemical characteristics of cereals.
Method: The cereals in this study were produced by the wet granulating method. Furthermore, the products were evaluated regarding the granule characteristics and then they were analyzed concerning the physical and chemical characteristic parameters after reconstitution and quality parameter regarding to SNI 01-4270-199 for cereals.
Result: The four formulas performed excellent granules flow characteristics. All granules also showed suitable characteristics of dispersion time, pH, viscosity, and flow behavior. Formula 2 and formula 4 which used 2% concentration of xanthan gum exhibited higher viscosity (333,75 cps and 305 cps) and dispersion stability (F=1). Furthermore, those formulas were further evaluated for cereal quality requirement based on SNI 01-4270-199.
Conclusion: Based on the results**,** xanthan gum concentration and type of milk influenced the physical and chemical characteristics of the cereal. The combination of full cream milk-soy milk and 2% concentration of xanthan gum exhibited a positive impact of the proximate content. Nevertheless, it must be optimized in a further study to meet the crude fiber content, water content, and fat content regarding SNI requirements.

Keywords: *Moringa oleifera*, cereal, xanthan gum, full cream milk, soy milk.

Characteristics and Release of Kappa Carragenan Microspheres Encapsulating Ciprofloxacin Hcl: Effect of Polymer Concentration

Dewi Melani Hariyadi[1*], Tutiek Purwanti[1], Dinda Maulydia[1], Cindy Alicia Estherline[1], Esti Hendradi[1], Mahardian Rahmadi[2]

[1]Department of Pharmaceutics, Faculty of Pharmacy, Universitas Airlangga, Surabaya-Indonesia
[2]Department of Clinical Pharmacy, Faculty of Pharmacy, Universitas Airlangga, Surabaya-Indonesia
*Email: dewi-m-h@ff.unair.ac.id

Abstract

Objective: The aim of this research was to evaluate the effect of kappa carrageenan polymer concentrations on the characteristics and release of Ciprofloxacin HCl from kappa carragenan microspheres.
Method: Ciprofloxacin HCl-carrageenan microspheres were produced by ionotropic gelation method using aerosolization technique with kappa carrageenan (0.75 %; 0.50% and 0.25%) as polymer and KCl (1.5 %) as crosslinker, lyoprotectant maltodextrin (5%) and was dried using freeze dryer with four formula, there were F1 (carrageenan 0.75% with maltodextrin), F2 (carrageenan 0.50% with maltodextrin) and F3 (carrageenan 0.25% with maltodextrin). Physical characteristics of microspheres were included particle morphology, particle size, moisture content, swelling index, drug loading, entrapment efficiency, muchoadhesivity, and yield.
Results: Physical characteristics showed that dried, smooth and spherical microspheres were found with particle size was within range of 1.34 µm to 1.70 µm with drug loading was of 15.63% to 38.72%. Entrapment efficiency and yield were in the range of 25.38% to 51.61 % and 52.53% to 63.19% respectively. Swelling index based on mass and size after 24 and 30 hours was within range 121% to 290% for all formulas and muchoadhesivity was between 0.0059 and 0.0096 kg force. The percentage of ciprofloxacin HCl released from microspheres in 24 hours was about 74.38% to 81.02% with release rates of 0.0290% to 0.0313%. Furthermore, release kinetics demonstrated that zero order kinetics was the majority of release mechanism of the drug. It was found that increasing kappa carrageenan concentration affected particle size, drug loading, entrapment efficiency, but did not affect muchoadhesive, yield and release of ciprofloxacin HCl-from microspheres.
Conclusion: Respirable size of mucoadhesive ciprofloxacin HCl-kappa carragenan microspheres were successfully produced and potential for lung delivery.

Keywords: Ciprofloxacin HCl, kappa carrageenan, microspheres, aerosolization, characteristics, release, mucoadhesive, lung delivery.

Preparation Multicomponent Crystal Of Curcumin And Quercetin

Lili Fitriani*, Astika, And Erizal Zaini

Department of Pharmaceutics, Faculty of Pharmacy, Universitas Andalas, Padang, Indonesia, 25163
*Email: lilifitriani@phar.unand.ac.id

Abstract

Curcumin, one of the main compounds of the turmeric plant (*Curcuma Longa* L.), has many pharmacological activities as antidiabetic, anti-inflammatory, antioxidant, antibacterial, and antiproliferative. However, the clinical use of curcumin is still limited due to its low solubility in water which results in low bioavailability.

Objective: This study aimed to improve the solubility of curcumin by modifying it into a multicomponent crystal (MC) form using quercetin as the co-former.

Method: The research was designed by preparing the binary phase diagram at mol ratio of 0.1:0.1 to 0.9:0.1. MC of curcumin and quercetin then were prepared by the solvent drop grinding method using ethanol pro-analysis. Multicomponent crystals were characterized using X-Ray Diffraction analysis (XRD), Differential Scanning Calorimetry (DSC) and Fourier Transform-Infra Red (FT-IR) spectroscopy. The solubility test was conducted using 40% ethanol for 30 minutes by sonication. The amount of curcumin dissolved was determined by High Performance Liquid Chromatography (HPLC) using methanol:distilled water (80:20) as the mobile phase and detected at wavelength 422 nm.

Result: The binary phase diagram showed that a simple eutectic mixture was formed at mol ratio 0.7:0.3 in which at this ratio was continued to prepare and characterize the MC. The decrease of endothermic peak and heat of fusion of curcumin in a MC was depicted by DSC. A decrease in the intensity of diffraction patterns by XRD indicated the decrease of crystallinity degree. Characterization by FT-IR showed almost no shift of the absorption peak of the curcumin functional groups in MC. The MC solubility was 124.28±7.076 mg/100ml while intact curcumin was 93.93±6.656 mg/100ml.

Conclusion: The multicomponent crystal of curcumin-quercetin showed higher solubility than intact curcumin.

Keywords: curcumin, quercetin, multicomponent crystal, eutectic mixture, solubility

Biodirected Green Synthesis Of Cerium Oxide Nanoparticles For Effective Management Of Alzheimer Disease

Sriramcharan. P[1], Jawahar*[1], V.Senthil[1] , Justin A[2] G.Nagaraju[3]

[1]Department of Pharmaceutics,JSS College of Pharmacy, Ooty-643001,
[2]Department of Pharmacology, JSS College of Pharmacy, Ooty-643001,
[3]Department of Chemistry Dept. of Chemistry SIT, Tumkur, Karnataka-572101
*Email: jawahar.n@jssuni.edu.in

Abstract

Alzheimer's disease (AD) is a chronic and progressive neurodegenerative disorder that represents 70% of all dementia with 36 million cases worldwide. It is characterized by accumulation of amyloid-β (Aβ), neurofibrillary tangles (NFTs), memory impairments. However, there has been little success since most of Drugs do not cross blood-brain barrier. Nanoceria (CeO2 nanoparticles) have received much attention in nanotechnology due to their useful applications as catalysts, and antioxidants in biological systems. The unique ability of nanoceria to switch its oxidation state between +3 and +4 makes it a potent therapeutic option for many diseases associated with oxidative stress, inflammation and also a potent drug delivery agent.

Objective: Therefore, the aim of the proposal is to synthesise easy, rapid and cost effective nanoceria through several bio-directed methods(green synthesis) applying natural and organic matrices as stabilizing agents in order to prepare biocompatible drug loaded CeO_2 nanoparticles(nanoceria).

Method: The prepared Green synthesis of Cerium oxide Nanoparticles was subjected to *invitro* and *invivo* evaluation.

Results: The results indicate that Green synthesis of Cerium oxide Nanoparticles is a promising and effective formulation for AD. The free radical scavenging activity of CNP and anti-acetyl cholinesterase property of Green synthesis of Cerium oxide Nanoparticles surely attributed for synergistic activity which enhances the neuroprotective and cognitive enhancement activity in AD was evidenced from the results.

Conclusion: The synthesised nanoceria will show protective action against production of ROS and amyloid β 1-42(Ab), could be a useful aids in curing neurodegenerative diseases like Alzheimers.

Keywords: Alzheimer Disease (AD), Cerium oxide nanoparticles (CNP), Reactive oxygen species (ROS), Synergism, Cognitive function, Green synthesis, Biocompatibility, Brain targeting.

Nanoparticles Of Ethanol Extract Kersen Leaves (*Muntingia calabura* L.): Preparation And Anti-Inflammatory Activity

Tengku Ismanelly Hanum[1*], Hetty Lendora Maha[2], Henny Sri Wahyuni[3], Rahmad Fadly[4], Indah Yuliasari Saragih[5]

[1,2,3,4,5]Faculty of Pharmacy, Universitas Sumatera Utara, Medan, 20155, Indonesia
[1]Nanomedicine Center of Innovation, Universitas Sumatera Utara, Medan, 20155, Indonesia
*Email: isma_nelly@usu.ac.id

Abstract

Objective: This study aimed to prepare and determine anti-inflammatory activity of nanoparticles of ethanol extract kersen leaves (NEEKL) (*Muntingia calabura* L.)
Method: Preparation of NEEKL by ionic gelation method using variations of chitosan and sodium tripolyphosphate (TPP-S), then characterized for its particle size and morphology. The anti-inflammatory activity of NEEKL was evaluated using the carrageenan-induced rat paw edema method. It was performed in six different groups. Each group consisted of 4 rats. The 1st group (negative control) was given 0.5% CMC-Na suspension; the 2nd group (positive control) was given diclofenac sodium 4.5 mg/KgBW; the 3rd, 4th, were given NEEKL as much 100, 300 mg/KgBW; 5th groups was given ethanolic extract kersen leaves (EEKL) and 6th group was given 1% chitosan-TPP-S. The measurements were done for 6 hours long with intervals of 60 minutes. All the data obtained were statistically analyzed.
Result: The NEEKL with variation chitosan:TPP-S (1.5:1) had smallest particle size (94.21 nm) and had aggregate morphology. Based on percent of inflammation there was a significant difference between negative control and there was no significant difference between positive control with other groups. The percentage of anti-inflammatory activity of positive control, 3rd, 4th, 5th, 6th group were 86.10±0.90%; 81.16±0.55%; 84.47±0.85%; 85.51±1.56%, and 77.44±1.83% respectively.
Conclusion: EEKL can be made in the form of nanoparticles by the ionic gelation method by fulfilling the nanoparticle requirements. NEEKL has effective anti-inflammatory activity at a dose of 300 mg/KgBW.
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Keywords: nanoparticles, kersen leaves, *Muntingia calabura* L, anti-inflammatory, ionic gelation

The Influence Of Kenikir (Cosmos caudatus Kunth) Ethanol Extract Concentrations On Peel Off Gel Formula And Its Anti-Aging Effect

Bayu Eko Prasetyo[1*], Ade Kaevin[2], Fenny Hasanah[2] And Lia Laila[1]

[1]Department of Pharmaceutical Technology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia, 20155
[2]Faculty of Pharmacy, Tjut Nyak Dhien University, Medan, Indonesia
*Email: bayu@usu.ac.id

Abstract

Objective: This research purposes were to evaluate the effect of different kenikir ethanol extract concentrations to the characteristic of peel off gel mask produced and its anti-aging effect.
Method: The ethanol extract was produced by maceration method. The different ethanol extract concentrations (1,3 and 5%) was inserted to the gel base containing Carbomer 940 as gelling agents and compared with the blank. The organoleptic test, homogeneity, pH determination, drying time, irritation and stability tests were conducted to evaluate the gel characteristic. The anti-aging test was done by using skin analyzer instrument.
Results: The results showed that all of the formulation successfully produced a peel off gel mask with good characteristic which were homogeny, gave the balance human normal pH, drying time below 21 minutes, non-irritant and stable for 3 months. All formula demonstrated anti-aging effect which decreased the pore size, increased the moisture level, lessen the dark spot and wrinkle; and the results were depended on the extract concentration.
Conclusion: The peel off gel mask with kenikir extract is successfully developed and the highest extract concentration (5%) is the formula with maximum anti-aging effect.

Keywords: anti-aging, *Cosmos caudatus* Kunth, peel off gel mask, skin analyzer.

Formulation And Permeation Studies Of Miconazole Nitrate Gel Containing Dimethyl Sulfokside As An Enhancer

Hetty Lendora Maha*[1], Bayu Eko Prasetyo[2], Mariadi[3]

[123]Department of Pharmaceutical Technology, Faculty of Pharmacy
Universitas Sumatera Utara, Medan-Indonesia
*Email: hetty_maha03@usu.ac.id

Abstract

Objective: The aims of the present study were to evaluate the physical characteristics and the penetration ability of miconazole nitrate gel containing dimethyl sulfoxide (DMSO) as an enhancer using Franz diffusion cell.
Methods: Four formula were prepared by varying concentration of DMSO (3%, 5%, and 7%) and one blank without enhancer. All formula were evaluated for their physical evaluation which included spreadability test, pH measurement and viscosity test of the prepared gel. The permeation test was conducted by Franz diffusion cell using rabbit skin. Permeation test was carried out for 8 hours.
Results: The physical evaluation of the gel formula showed that the spreadability of the gel were 6.2 cm, 6.3 cm, 6.5 and 6.6 cm for F0, F1, F2 and F3 respectively. The average pH of the gel preparations ranged from 5.0 - 5.9 and the viscosity of gel was about 3996 cps. The result of permeation test showed that DMSO was able to increase miconazole nitrate permeation. F3 formula that contained 7% DMSO had the greatest percentage of permeation after 8 hours which was 13.19%, while blank formula demonstrated 2.8% permeation.
Conclusion: Dimethyl sulfoxide can improve the permeation profile of miconazole nitrate gel. The formula containing 7% dimethyl sulfoxide give the most excellent permeation profile.

Keywords: Enhancer, miconazole nitrate, dimethyl sulfoxide, antifungal gel.

Photoprotective Effects Of Corn (*Zea mays* L.) Husk And Silk Extract And Gel Dosage From

MS Lubis[1], Ridwanto[2]

[1,2]Universitas Muslim Nusantara Al Washliyah
Email: mindasarilubis@umnaw.ac.id

Abstract

Objective: Utilization of waste from corn (Zea mays L.) is still limited as animal feed, while the use of its component content is still very limited. As corn contains chemical compounds of the flavonoid class that have photoprotective potential, the aim of this study was to observe the photoprotective effect of the corn husk and silk extract and to apply it in a gel dosage form.
Method: The test parameters observed were simplicia characterization, phytochemical screening, determination of flavonoid compounds using infrared spectrophotometer, testing of corn husk and silk extract formulated in gel dosage form with a concentration of 10%. Evaluation of the physical quality of the gel dosage form included organoleptic tests, homogeneity, pH, dispersion, adhesion and viscosity with gel stability before and after cycling tests as well as determining the SPF value of the extract and gel dosage form using UV-Vis spectrophotometry.
Result: The results showed that the ethanol extract of corn husk and silk had a moisture content of 7.33%□10%; 5.33% □10%, water soluble extract content 2.69%□7%; 6.18%□7%, soluble extract content in ethanol 2.69%□0.5%; 3.97%□0.5%, total ash content of 1.55%□ 5%; 3.86% □5%, acid soluble ash content 0.21%□1%; 0.51%□1%. Phytochemical screening tests showed the presence of alkaloids, flavonoids, saponins, tannins and triterpenoids / steroids. The infrared spectrum shows the presence of flavonoids. The gel dosage form was stable before and after cycling test with identification results of brown color, distinctive odor, semi-solid form, homogeneous, pH 6.9-7.8; spreadability 3,095-4,216 cm; adhesion 3.17-6.52 seconds; viscosity 9,845-32,980 cPs. Testing the SPF value of corn husk and silk extract and its gel dosage form shows ultra protection.
Conclusion: corn husk and silk extract (Zea mays L.), and the gel dosage form has a photoprotective effect.

Key words: Extract, Gel, SPF.

Physical Stability And Dissolution Of Ketoprofen Nanosuspension Formulation: Polyvinylpyrrolidone As Stabilizer

Tengku Ismanelly Hanum[1], Azizah Nasution [2]* Sumaiyah[3], Hakim Bangun[4]

[1,2,3,4]Faculty of Pharmacy, Universitas Sumatera Utara, Medan, 20155, Indonesia
[1,3,4]Nanomedicine Centre of Innovation, Universitas Sumatera Utara, Medan, 20155, Indonesia
*Email: azizah@usu.ac.id

Abstract

Objective: To study the physical stability and dissolution of ketoprofen nanosuspensions formulation using polyvinylpyrrolidone as stabilizer
Method: Ketoprofen Nanosuspensions (KPN) were prepared by solvent evaporation method using Tween 80 and polyvinylpyrrolidone (PVP) as stabilizers at varied ratios with ketoprofen, while ethanol was used as solvent for ketoprofen. Physical stability of the formulated suspensions was analyzed by storage at room temperature for 12 weeks. The evaluated parameters included pH, appearance, odor, color, particle size, zeta potential, polydispersity index (PI) and dissolution comparing with ketoprofen suspension.
Result: Ketoprofen and PVP ratios of 1: 1 and 1: 1.5 had nano-scale particle sizes of 78.87 ± 7,92 and 78.47 ± 0.61, respectively. The parameters evaluated including pH, appearance, odor, color, particle size, and PI were stable at room temperature. Dissolution rate of KPN was higher compared to that of ketoprofen suspension.
Conclusion: KPN with PVP as stabilizer was stable at room temperature and had higher dissolution rate compared to ketoprofen suspension

Keywords: physical stability, dissolution, nanosuspension, ketoprofen, polyvinylpyrrolidone

Formulation Gel Mask From Extract Propolis and Aloe Vera As Anti Aging and Anti Acne

Isna Wardaniati [1], Deri Islami [2]

[1] DIII Anafarma, Fakultas kedokteran dan ilmu kesehatan, Universitas Abdurrab, Pekanbaru, Indonesia
[2] S1 Farmasi, Fakultas kedokteran dan ilmu kesehatan, Universitas Abdurrab, Pekanbaru, Indonesia
Email :isna.wardaniati@univrab.ac.id; deri.islami@univrab.ac.id

Abstract

Objective: The skin is the body armor of exposure to environmental pollution, especially the skin is often exposed to UV rays, the impact can cause skin problems such as wrinkles, aging, acne and enlarged pores. Aloe vera is efficacious as an anti-inflammatory, anti-fungal, anti-bacterial and helps in cell regeneration. Propolis is a substance produced by bees to protect the nest from a variety of threats, unfavorable environmental threat or attack other organisms. Chemical compounds contained in propolis is very complex among other alkaloids, flavonoids, saponins, steroids and tannins. This study aims to make preparations antioxidant formulations gel mask propolis and aloe vera extract and test the antibacterial activity against a gel mask and activity of propolis extract and aloe vera.
Methode: Facial cosmetics can be formulated in various dosage forms, one of them in the form of a gel mask aloe vera.
Results: From the research that has been done, the result of evaluation dosage formulations gel mask aloe extract and propolis for organoleptic testing, homogeneity, dispersive power, adhesiveness and drying time is compliant with the standards of quality preparation gel mask. pH and viscosity of the gel mask preparations not meet the requirements. On the test of anti-bacterial activity against acne bacterium propioni showed F1, F2 and F3 have inhibitory 6 mm, 10 mm, 12 mm and a positive control (18 mm).
Conclusion: The antioxidant activity of propolis extract gel mask and aloe vera has a % inhibition of F1, F2 and F3 are 55.28, 79.75 and 92.43

Keywords : propolis, aloe vera, gel mask, antioxidant, antibacterial

Antimicrobial Activity Of Chitosan-Silver Nanoparticle And Microbial Charactization Of Nanofibre Cellulose

Poppy Anjelisa Zaitun Hasibuan[1*], Yuandani[1], Masita Tanjung[2], Ardiansyah Sembiring[3], Averroes F Piliang[4], Saharman Gea[3], Muhammad Fauzan Lubis[5]

[1]Departement of Pharmacy, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, 20155, Indonesia
[2]Departement of Biology, Faculty of Mathematics and Natural Sciences, Universitas Sumatera Utara, Medan, 20155, Indonesia
[3]Departement of Chemistry, Faculty of Mathematics and Natural Sciences, Universitas Sumatera Utara, Medan, 20155, Indonesia
[4]Departement of Physics, Faculty of Mathematics and Natural Sciences, Universitas Sumatera Utara, Medan, 20155, Indonesia
[5]Departement of Biology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, 20155, Indonesia
*Email: poppyanjelisa@usu.ac.id

Abstract

Objective: The use of silver nanoparticle and cellulosic material has been utilized widely in medical treatment. In this study, the use of chitosan as coupling agent for silver nanoparticle is examined and antimicrobial activity of samples were determined.
Method: The synthesis of chitosan-silver nanoparticle was carried out by reduction method of glucose. Whereas the antibacterial activities were investigated based on physical observation and determination of zone inhibition of some types of microba.
Result: Our results confirmed that the nanofiber cellulose and chitosan-silver nanoparticle have been successfully synthesized, while both of these materials showed antibacterial properties.
Conclusion: This report shows potential strategy in fabricating nanofibre cellulose and chitosan-silver nanoparticle as a wound-dressing material.

Keywords: Antimicroba activity, Chitosan-Silver Nanoparticles, Nanofiber Cellulose.

A Novel Design And Development Of Early Denv Inhibitors As Potential Anti Dengue Lead Compounds

Naresh P, Jubie S*, Shyam Sundar P, Chandra Shekar Mjn, Girija K[1]

Department of Pharmaceutical Chemistry, JSS College of Pharmacy, Ooty-643001
[1]Department of Pharmaceutical Chemistry, Mother Teresa Post Graduate & Research Institute of Health Sciences, Pondicherry-605006
*E-mail: nareshtrcp10@gmail.com

Abstract

Dengue virus enters the cell by receptor-mediated endocytosis followed by a viral envelope (DENVE) protein-mediated membrane fusion. A small detergent molecule n-octyl-β-D–glucoside (βOG) occupies the hydrophobic pocket which is located in the hinge region plays a major role in the rearrangement. It has been reported that mutations occurred in this binding pocket lead to the alterations of pH threshold for fusion. In addition to this event, the protonation of histidine residues present in the hydrophobic pocket would also impart the conformational change of the E protein evidence this pocket as a promising target.

Objective: The present study identified novel cinnamic acid analogs as significant blockers of the hydrophobic pocket through molecular modeling studies against DENVE.

Method: A library of seventy-two analogs of cinnamic acid (SCA) was undertaken for the discovery process of DENV inhibitors. A Molecular docking study was used to analyze the binding mechanism between these compounds and DENV followed by ADMET prediction. Binding energies were predicted by the MMGBSA study. The Molecular dynamic simulation was utilized to confirm the stability of potential compound binding. To check whether the compounds have *in-vitro* antiviral activity, three small molecules of cinnamic acid analogs have been tested against HSV-1&2 viruses.

Result: From the computational results, the compounds SCA 60, SCA 57, SCA 37, SCA 58 exhibited favorable interaction energy. The antiviral activity results clearly indicate that the compounds (SCA60, SCA57, and SCA37) showed the activity against both the viruses.

Conclusion: Our study provides valuable information on the discovery of small molecules DENVE inhibitors.

Key words: Dengue virus, envelope protein, n-octyl-β-D–glucoside (βOG), hydrophobic pocket, hinge region, cinnamic acid, ADMET, MMGBSA, *in-silico*, *in-vitro* antiviral activity.

Brief Counseling Methods to Improve Drug Compliance and Hypertension Therapy Effectiveness in Khanza Pharmacy, Gambut, South Kalimantan

Muhammad Reza Pahlevi[1], Aulia Rahim[1]

Sekolah Tinggi Ilmu Kesehatan Borneo Lestari
email: reza.apoteker@gmail.com

Abstract

Objective: Hypertension is a chronic disease that causes many deaths when handled incorrectly, characterized by blood pressure above normal values. Hypertensive patients require pharmacist intervention to achieve control of blood pressure within normal limits. The purpose of this study was to see the effect of the brief counseling method to improve medication adherence and control the blood pressure of hypertensive patients to be in the range of normal blood pressure values at the Khanza Farma Pharmacy.
Method: This study used a quasi experimental design by providing 60 patients with brief counseling intervention to hypertension patients. Study data from patients were followed and collected prospectively. Data collection using a questionnaire given before and after the intervention brief counseling. The exclusion criteria in this study were deaf, pregnant, illiterate, and uncooperative patients. Blood pressure data collected is pressure data taken pre and post study. Questionnaire data and blood pressure were analyzed using paired t-test and Wilcoxon.
Results: The results showed that there was a significant decrease in blood pressure in the post study ($p < 0.05$). Brief conuseling had an effect on increasing patient compliance ($p < 0.05$).
Conclusion: The conclusion of this study is that there is an increase in patient compliance and a decrease in blood pressure in hypertensive patients after being given brief counseling.

Keywords: hypertension, brief counseling, compliance

The Correlation Between The Characteristics of Hypertension Patients With Knowledge and Medication Adherence

Khairunnisa[1]*, Sri Wahyuni[1], Urip Harahap[1]

[1]Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia
*Email: khairunnisa7@usu.ac.id

Abstract

Objective: This study aimed to determine the correlation between the characteristics of hypertension patients with knowledge and medication adherence.
Method: This study was conducted with a cross-sectional study that included 103 patients in several health centers in Medan City from August - September 2020. Data on patient characteristics were collected consisting of age, gender, latest education, occupation, duration of hypertension, and blood pressure values. The HK-LS questionnaire was used to measure knowledge, and the MMAS-8 questionnaire was used to measure the compliance of hypertension patients.
Result: The results showed that the majority of patients involved in this study were women (59.2%), aged> 60 years (58.2%), the latest education level was higher education (55.3%), and retired (50.5%). This study also showed that most patients had controlled blood pressure (65%), and the duration of suffering from hypertension was 2-5 years (53.4%). The statistical test results showed that all patient characteristics did not have a significant relationship with the level of knowledge and compliance ($p>0.05$). However, blood pressure had a significant relationship with patient compliance, $p=0.009$. The correlation test result between the level of knowledge and the level of compliance shows that these two variables have a positive correlation with a weak correlation value (0.224).
Conclusion: Based on the study results, it can be concluded that the value of blood pressure is influenced significantly by patient adherence and that adherence can increase as patient knowledge increases.

Keywords: Hypertension, Characteristics, Adherence, Knowledge.

Academic Stress And Coping Stress Of College Students In Universitas Sumatera Utara

Amalia Meutia[1*], Dina Nazriani[2]

[1,2]Psychology Faculty, Universitas Sumatera Utara
*Email: amalia.meutia@usu.ac.id

Abstract

College students of Universitas Sumatera have various causes of stress, starting from academic problems, physical factors, environment, financial problems, intrapersonal and interpersonal relationships. Stress has a negative impact on college students if the individual does not do coping stress.
Objective: The purpose of this study is to describe the level of stress based on stressors and how students of the University of North Sumatra do their coping stress. This study used a quantitative descriptive design.
Method: The sample in this study was N = 997 samples using incidental sampling techniques. Data were collected using the sent Student Stress Inventory (SSI) for stress levels and the COPE Inventory Brief for coping stress levels. The results showed that students at the Universitas Sumatera Utara experienced mild stress levels of 434 people (43.5%), medium stress levels were 548 people (55%), and severe stress levels were 15 people (1.5%).
Result: The results of further research, in terms of coping stress, where students do coping stress with a mild level of 21 people (2.1%), a moderate level of 729 people (73.1%) and a high level of 247 people (24.8%) .
Conclusion: The highest aspect of handling that emotions focused coping is by taking a religious approach, and handling that problems focused coping with the highest aspect is planning. Based on the results of this study, the level of stress and the way students of the University of North Sumatra did coping stress were dominated by moderate levels.

Keywords: coping stress, college students, stress.

Psychometrics Evaluation Of Geneva Emotion Wheel

Dina Nazriani[1*], Amalia Meutia[2]

[1,2]faculty of Psychology, Universitas Sumatera Utara
*Email: nazriani.dina@usu.ac.id

Abstract

Objective: Emotion is a response that arises because of an individual's assessment of internal and external stimuli. To be able to know the emotional state requires a good tools, because emotion has a big role in all aspects of life. So far, in Indonesia, those used as an intervention for emotional tools have mostly used instruments developed by experts from abroad. Of course, the meaning of emotions is different when compared to emotions that are culturally appropriate in Indonesia. The development of emotion instruments that are unique to Indonesia is a first step to get the concept of emotion that is unique to Indonesia.
Method: To be able to get a psychometric evaluation of the Geneva Emotion Wheel, the researchers used quantitative descriptive methods to estimate validity and reliability of the measurements. The validity estimation was held with Confirmatory Factor Analysis to gather the evidence of the content validity ; whilst the reliability estimation was held with Alpha Cronbach Formula. All the analysis was done with the emphasis to classical measurement theory.
Result: According to the statistical analysis, Geneva Emotion Wheel measurement model could be use in Indonesia with some limitation. Based on the content validity evidence, it shown that the model could be a fit model to measure emotion. The limitation of the measurement was found in the interpreatation of emotion word. Using the reliability estimation, it shown that this measurement reliable to measure emotion in Indonesia.
Conclusion: The results suggest that there should be a follow up action to make a more acceptably-cultural of emotion measurement. There is an urgent action to make a unique measurement toward a vast-cover cultural diversity in Indonesia

Keywords: emotion, Geneva Emotion Wheel, psychometrics

Evaluation Of The Rationality Of Using Antihypertensive Drugs In Patients Hypertension Comorbid Chronic Kidney Disease In Medan

Nadroh Sitepu[1], Nurul Hidayah[2], Sri Widia Ningsih[3]

[1,2,3]Poltekkes Kemenkes Medan
Email: nadroh1980@gmail.com

Abstract

Objective: Hypertension is a "silent killer" which is widely known as cardiovascular disease, which this complication results chronic kidney disease (CKD). The parameters to monitor the condition of hypertensive patients-CKD are blood pressure and the rate of Glomerular Filtration Rate (GFR). The aim of this study was to determine the rationality for the use of antihypertensive drugs in the category: the right of drug, the right patient, the right dose and interaction of drugs as well as the outcomes for CKD patients in government hospitals in Medan period January 2016 - December 2018.
Method: This study used a non-experimental descriptive research design. Data was collected retrospectively from the medical records of patients hypertention-CKD at RSUP H.Adam Malik Medan and RSUD Dr.Pirngadi Medan period January 2016-December 2018. Data was performed by using the frequency analysis method to see the profile distribution of patients and rationality therapy. Furthermore, the data were analyzed statistically using multiple linear regression test.
Result: The results showed that there was an irrational therapy in the category of inappropriate drugs (10.34%), inappropriate dosages (41.38%) and potential drug interactions (48.28%).
Conclusion: The correlation of the rational use of antihypertensive drugs to outcomes patients has a low correlation, namely 7.1% and is not significant.

Keyword: Rationality of drug, Antihypertension, Chronic Kidney Disease, Hospital

Analysis Of Adherence Correlation And Quality Of Life Of Dyslipidemia Patients: A Case Studies In Pharmacy

Manahan Situmorang[1], Wiryanto[1*], Khairunnisa[1]

Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia
*Email: wiryanto_2510@yahoo.com

Abstract

Objective: This study aimed to analyze the relationship of adherence and quality of life of patients dyslipidemia in one of the pharmacies in Medan, Indonesia.
Method: Design of this study was a cross sectional involved 45 patients with dyslipidemia on July-August 2020 at one of the pharmacies in Medan, Indonesia. Adherence and quality of life were assessed with MMAS-8 and EQ-5D-3L questionnaires, respectively. The data was obtained after all patients undergone at least one month of dislipidemia therapy. Adherence and quality of life correlation was analyzed using *spearman rho* test .
Result: The number of patients who participated in this study consisted of 35.6% of men and 64.4% of women. The majority of patients over 65 years old (35.6%). The adherence mean of patients has a low category with 69.6% quality of life mean. Adherence has a significant correlation with the quality of life of patients with dyslipidemia ($p<0.05$) with a weak correlation coefficient of $r = 0.316$.
Conclusion: This study concluded that the higher the level of adherence, the better the quality of life of patients with dyslipidemia.

Keywords: adherence**,** dyslipidemia, quality of life, pharmacy.

The Relationship of Sociodemographic Factors to The Satisfaction of Clinical Pharmacy Services (The Study Was Conducted on Bpjs Health Patients in The Outpatient Polyclinic of "X" Hospital in Malang Regency)

Nicmah Aprilia Iriani Putri[1], Ema Pristi Yunita[2*], Hananditia Rachma Pramestutie[3]

[1,2,3]Department of Pharmacy, Faculty of Medicine, Universitas Brawijaya, Malang, Indonesia
[2]Research Center of Smart Molecule of Natural Genetics Resources (SMONAGENES), Universitas Brawijaya, Malang, Indonesia
*Email: emapristi@ub.ac.id

Abstract

Objective: This study aims to determine the relationship between the sociodemographic factors (i.e. age, gender, education, occupation, and income) and the satisfaction of Indonesian National Health Insurance (BPJS) patients that have received clinical pharmacy services from "X" Hospital. Additionally, we also want to determine the index of patient satisfaction with the clinical pharmacy service.
Method: This study adopted an observational analysis with a cross-sectional approach, and was conducted at the outpatient polyclinic, "X" Hospital in Malang Regency from June to July 2020. A total of 101 selected patients met the inclusion and exclusion criteria. The Somers'd and Lambda's hypothesis test with a questionnaire were used to assess the sociodemographic factors on the level of patients' satisfaction.
Result: Most of the patients (50; 49.5%) were in the early adult category, while females (61; 60.4%) were more than males. Most of them acquired secondary education level (41; 40.6%), and there were more working patient (83; 82.2%) than the unemployed. Moreover, most patients' income were in the moderate category (31; 30.7%). The hypothesis test results showed that there was no statistically significant correlation between age, gender, education, occupation, and income with the clinical pharmacy services provided (p = 0.321; 0.653; 0.901; 0.438; 0.779). While the index value of patients' satisfaction was 97.75.
Conclusion: The results showed that there was no relationship between sociodemographic factors and patients' satisfaction with the clinical pharmacy services provided. However, the index value of patient satisfaction was very good (score A).

Keywords: Sociodemographic, Clinical Pharmacy, Indonesian National Health Insurance (BPJS)

Drug Use Evaluation of Outpatients in Pharmacy Installation at Universitas Sumatera Utara Hospital

Syilvi Rinda Sari[1], Khairunnisa[2*], Aminah Dalimunthe[3]

Departement of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara
*Email: khairunnisa7@usu.ac.id

Abstract

Objective: Hospital is an institution that offers comprehensive healthcare services. To support the function of hospital as healthcare provider, active roles and contribution of pharmacist plays important roles, especially in ensuring rational drugs distribution to patients. Recently, irrational treatment is very common and it is potentially causing harm to patients and hospital. The aim of this research is to evaluate drug use of outpatient in Pharmacy Installation at Universitas Sumatera Utara Hospital.
Method: This is a descriptive evaluative research. The data was collected retrospectively and concurrently. Then the raw data was categorized into quantitative data and it was represented in tables to compare the data visually. Meanwhile, qualitative data was collected by observation and interview with the interviewees.
Result: This research showed that there are some indicator of drug use from any outpatients at Universitas Sumatera Utara Hospital. It was known that the total item of drugs per sheet prescription in 2017 and 2018 did not meet the standard requirements with 3,69 and 3,63. Moreover percentage of generic drugs in 2017 and 2018 was 81,93% and 80,9%. It was only 6.05% and 6.47% appropriate antibiotic prescription in 2017 and 2018 respectively. In the same year, injected drugs prescription was 9,3% and8,58%. Both, in 2017 and 2018, drug prescription was suited to hospital formularium. The percentage of drugs that available to be distributed was only 90%, but all drugs (100%) have label.
Conclusion : This research showed that drug use of outpatient in Pharmacy Instalation of hospital met the standard requirement.

Keywords: Drug, Use, Evaluation

Effect Of Adherence With Clinical Outcomes And Quality Of Life Of Primary Hypertension Patients In Pharmacy

Dumartina Hutauruk[1], Khairunnisa[1*], Wiryanto[1]

[1]Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia
*Email: khairunnisa7@usu.ac.id

Abstract

Objective: This study aimed to examine the effect of adherence to clinical outcomes and the quality of life of primary hypertension patients in pharmacy.
Method: The studywas conducted cross sectionally involved 60 patients at one of the pharmacies in Medan, Indonesia. Adherence was obtained in the form of adherence levels measured using the MMAS-8 questionnaire, clinical outcomes assessed by measuring a patient's blood pressure, and quality of life assessed using the EQ-5D-3L questionnaire. Then the data were analyzed using the *Spearmen rho* test.
Results: Patients who participated in the study consisted of 24 men and 36 women. Almost patient has low adherence with blood pressure mean of 156/ 90 mmHg. The patient's quality of life was 77.7%. Adherence has a significant relationship to clinical outcomes ($p<0.05$) with a strong correlation of $r= -0.745$. Adherence has a relationship to quality of life ($p<0.05$) with moderate correlation $r= 0.554$.
Conclusion: This study concluded that adherence has a correlation with clinical outcomes and the quality of life of primary hypertension patients.

Keywords: adherence, quality of life, hypertension, pharmacy.

The Correlation Of Smoking Degree With Gastroesophageal Reflux Disease By Using Gerdq

Debi Triana[1], Saminan[2], Masra Lena Siregar[3], Teuku Mamfaluti[3], Teuku Romi Imansyah Putra[4], Sarah Firdausa[3]*

[1]School of Medicine, Faculty of Medicine, Universitas Syiah Kuala
[2]Department of Physiology, Faculty of Medicine, Universitas Syiah Kuala
[3]Internal Medicine Department, Faculty of Medicine, Syiah Kuala University / KSM Internal Medicine, dr. Zainoel Abidin, Banda Aceh
[4]Department of Parasitology, Faculty of Medicine, Syiah Kuala UniversityDepartment of Pharmacology, Faculty of Medicine, Universitas Syiah Kuala, Indonesia
[3]Department of Patology Anatomy, Faculty of Medicine, Universitas Syiah Kuala, Indonesia
*Email: sarah.firdausa@unsyiah.ac.id

Abstract

Objective: Gastroesophageal Reflux Disease (GERD) is a pathological condition caused by the reflux of stomach contents into the esophagus. The main symptoms experienced by GERD sufferers are heartburn, acid regurgitation, dysphagia, chest pain, and nausea. GERD caused by several factors one of which is smoking. Smoking can cause an increase in the frequency of GERD by decreasing the Lower Esophageal Sphincter (LES) tone so that it can cause reflux from the contents of the stomach to the esophagus and also can reduce the secretion of salivary bicarbonate which can neutralize stomach acid. This study aims to determine the relationship between the degree of smoking with Gastroesophageal Reflux Disease based on GERDQ.
Method: Research Subjecs were 66, the sample selection used non probability sampling with the accidental sampling method. Data analysis was performed using the chi-square test.
Results: The results of this study found that there is a relationship between the degree of smoking with Gastroesophageal Reflux Disease based on GERDQ. The results of the data analysis obtained p-value = 0.003.
Conclusion: This study concluded that there is a relationship between the degree of smoking with Gastroesophageal Reflux Disease based on GERDQ.

Keywords: Smoking degree, Gastroesophageal Reflux Disease (GERD).

Overview Of Smoking Behavior In Community In Poasia District Kendari City

Narmawan Narmawan

Program Studi Ilmu Keperawatan STIKes Karya Kesehatan
*Email: narmawanfebson@gmail.com

Abstract

Cigarettes are a form of tobacco that generally can have a negative impact on the health of each individual who regularly eat it. Behavior change is a form of intervention to prevent and minimize the of complications or health problems. To date now data describing about smoking behavior is still lacking.
Objective: This study will describe behaviors related to attitude, subjective norms, behavioral control and intention to stop consuming cigarettes.
Methods: Descriptive research was taken through accidental sampling in 4 villages in Poasia District Kendari city comprised of 93 respondents. The sample criteria are man with smokers, can read and write and are willing to be respondents. The instrument used was a questionnaire measures smoking behavior. Then analyzed used is in the form of frequency distribution.
Results: Of the 93 respondents, the mean age was 28.04, ± 10.37 years and the length of active smoking was 9.13, ± 9.12 years. About 69.9% of respondents had a positive attitude, 69.9% had social support, 61.3% of respondents had behavioral control and around 66.7% of respondents had intention for quit smoking.
Conclusion: more then 50% of respondents are smokers have positive attitude, social support, there is behavioral control and the intention to quit consuming cigarettes. Attempts to quit smoking behavior in individuals who actively smoke will minimize the risk of complications from diseases such as lung cancer and problem heart.

Keywords : Cigarette, Attitede, Subjective Norms, Behavioral Control, Intention

Correlation Of Hydroxy Vitamin D (25oh-D) Levels With Lipid Profile In Type 2 Dm Patients In Medan. Indonesia

Rina Amelia[1*], Juliandi Harahap[1], Hendri Wijaya[2], Reni Asmara Ariga[3]

[1]Department of Community Medicine/Public Health, Faculty of Medicine, Universitas Sumatera Utara, Jl. dr. Mansyur No.5 Kampus USU Medan 20155, Indonesia
[2]Department of Paediatrics, Faculty of Medicine, Universitas Sumatera Utara, Jl. dr. Mansyur No.5 Kampus USU Medan 20155, Indonesia
[3]Faculty of Nursing, Universitas Sumatera Utara, Jl. Prof. Maas No. 3 Kampus USU Medan 20155, Indonesia
*Email: rina2@usu.ac.id

Abstract

Objective: This study aimed to analyze the correlation between Hydroxy vitamin D (25OH-D) levels and lipid profiles in Type 2 DM patients in Medan City.
Method: The research design was a correlative study with a cross-sectional approach. The study population was DM patients who came and sought treatment at primary services in Medan; the number of samples was 89 people with a sampling method using consumptive sampling. The research data sources were primary data, the hydroxyvitamin D and lipid profile examinations were carried out by direct blood sampling. The hydroxyvitamin D examination was carried out by the Elisa method. In contrast, the examination of the lipid profile was carried out by the Enzymatic Colorimetric method. Previously, the research protocol had received the ethical clearance approval from North Sumatra University Ethics Commission. Data analysis using the Spearman correlation test.
Result: The average level of Hydroxy vitamin D was 34.9 nmol/liter, the average total cholesterol was 220.6 mg/dl, HDL-C 46.7 mg/dl, LDL-C 126.4 mg/dl, and triglycerides 244.4 mg/dl.
Conclusion: The Spearman correlation test results show a strong correlation between levels of deoxy Vitamin D and triglycerides, while Hydroxy vitamin D has a weak correlation with total cholesterol, HDL-C, and LDL-C.

Keywords: Hydroxy vitamin D, type 2 DM, total cholesterol, HDL-C, LDL-C, triglycerides, macrovascular complication

Correlation Between Hydroxy Vitamin D (25oh-D) And Albumin Creatinine Ratio (Acr) For Screening Of Diabetic Nephropaty Complications In Type 2 Dm Patients In The City Of Medan Indonesia

Rina Amelia[1]*, Dina Keumala Sari[2], Riri Andri Muzasti[3], Hendri Wijaya[4], Reni Asmara Ariga[5]

[1]Department of Community Medicine/Public Health, Faculty of Medicine, Universitas Sumatera Utara, Jl. dr. Mansyur No.5 Kampus USU Medan 20155, Indonesia
[2]Nutrition Department, Faculty of Medicine, Universitas Sumatera Utara, Jl. dr. Mansyur No.5 Kampus USU Medan 20155, Indonesia
[3]Division of Nephrology and Hypertension, Department of Internal Medicine, Faculty of Medicine, Universitas Sumatera Utara, Jl. dr. Mansyur No.5 Kampus USU Medan 20155, Indonesia
[4]Department of Paediatrics, Faculty of Medicine, Universitas Sumatera Utara, Jl. dr. Mansyur No.5 Kampus USU Medan 20155, Indonesia
[5]Faculty of Nursing, Universitas Sumatera Utara, Jl. Prof. Maas No. 3 Kampus USU Medan 20155, Indonesia
*Email: rina2@usu.ac.id

Abstract

Objective: The purpose of this study was to determine the correlation between levels of Hydroxyvitamin d (25OH-D) with albumin creatinine ratio (ACR) of type 2 DM (T2DM) in medan.
Method: The study design was an analytic study with a cross-sectional approach. The research sample was T2DM patients who came and controls at the primary center in Medan, amounting to 89 people (by consecutive sampling). The research data sources were primary data, Hydroxy vitamin D lipid profile examination was carried out by direct blood sampling, and the examination was carried out by the Elisa method, ACR was carried out using examining urine, which was taken directly at the time of the examination (random urine) using the Immunometric assay method. Previously, the research protocol had received ethical clerical approval from the Ethics Commission of the University of North Sumatra. Data analysis was performed using the Spearman correlation test.
Result: The average level of Hydroxy vitamin D was 34.9 nmol/liter, while the average ACR level was 164.5 mg albumin/gr creatinine (p> 0.05).
Conclusion: There is no correlation between levels of hydroxyvitamin D (25OH-D) and Albumin Creatinine Ratio (ACR) as screening for complications of diabetic nephropathy in type 2 diabetes patients.

Keywords: Albumin Creatinine Ratio, Hydroxy vitamin D, type 2 DM, total cholesterol, HDL-C, LDL-C, triglycerides, macrovascular complication

Effect Of Pesticides Exposure On Kidney Function And Cholinesterase Levels In Spraying Workers In Oil Palm Plantations

Juliandi Harahap[1*], Lita Sri Andayani[2]

[1]Department of Community Medicine, Faculty of Medicine, Universitas Sumatera Utara
[2]Department of Health Education and Behavioral Sciences, Faculty of Public Health, Universitas Sumatera Utara
*Email: juliandi@usu.ac.id; drdrjuliandiharahapma@gmail.com

Abstract

Objective: One of the important organs that can be damaged by exposure to pesticides is the kidneys. This study aims to determine whether there are differences in ureum, creatinine, estimated glomerular filtration rate (eGFR) and cholinesterase levels between spray workers and non-spray workers.
Method: This cross-sectional study was conducted using a comparative approach with 30 respondents as sprayers and 30 non-sprayers who have worked for at least 5 years in oil palm plantations. Respondents were interviewed regarding the use of PPE and blood tests were performed to assess kidney function and cholinesterase levels. All respondents gave written informed consent. Data analysis was done descriptively and used independent t-test with $p<0.05$
Results: Parameters of kidney function in the spray workers and non-spray workers was within normal limits, where the mean of ureum 19.1±3.6 vs 20.2±4.4 mg/dL, creatinine 0.69±0.1 vs 0.99±1.1 mg/dL, eGFR 106±14.2 vs 113.4±15.6 mL/min/1.37m^2 respectively, and the independent t-test showed that there was no significant difference on these parameters ($p> 0.05$). The mean cholinesterase levels for the sprayer group 9382±1911U/L and non-spray group 9597±1622 U/L where the independent t-test results also showed no significant difference ($p> 0.05$). The PPE use and pesticide prevention in the sprayer group was well implemented.
Conclusion: Overall, the kidney function of workers was within normal limits, and there was no difference in the levels of ureum, creatinine, and eGFR in the two groups as well as the cholinesterase levels. Impaired kidney function and other complaints due to pesticides can be avoided by using PPE.

Keywords: Renal Functions, Cholinesterase, Pesticide Exposure, PPE

Comparison Of Antibiotic Sensitivity In Pulveres And Finished Drug Preparations For Bacteria In Sputum For Children Ari Patients In Banyumas District Health Center

Indri Hapsari[1*], Shintia Lintang Charisma[2],Nofita Fitri Kurniasih[3]

Faculty Of Pharmacy Universitas Muhammadiyah Purwokerto
*Email: indrihapsari_ump10@yahoo.co.id

Abstract

Objective:: The prevalence of acute respiratory tract infections (ISPA) in Indonesia reached 25% with an incidence range of 17.5%-41.4%. ARI attacks many children. Treatment is given in the form of antibiotics and given other drugs. First-line therapy for ISPA patients is given Amoxicillin antibiotics. Antibiotics are given in the form of pulver dosage form with a percentage of 71%, semi-solid preparations 21.8%, 7.2% liquid. Based on the results of a survey at the Banyumas District Health Center, preparations that are often formulated for pediatric ARI patients are pulveres needed from antibiotic tablets which are crushed and added with other drugs. Based on this, it is necessary to discuss the sensitivity of antibiotics in pulverized preparations and finished drugs to bacteria in the sputum of a child ARI patient in the Banyumas District Health Center.
Method: The method used is the diffusion method so that the sample used is pulveres and sputum of a child ARD patient in Banyumas District Health Center and analyzed using antibiotic inhibition measurements.
Results: This study showed the presence of bacterial causes of ARI in sputum of patients in Banyumas District Health Center. The bacteria found are Streptococcus pneumonia, Sthapylococcus aureus, Klabsiella pneumonia. Descriptive results show that Streptococcus pneumonia bacteria are sensitive and resistant, Sthapylococcus aureus is resistant and Klabsiella pneumonia is sensitive. Kruskal-Wallis Based Analysis shows significant differences between antibiotic sensitivity and finished drugs. The results of the analysis showed a weak relationship between sensitivity and resistance to the preparation of antibiotics and finished drugs at the Banyumas District Health Center.
Conclusion: Antibiotics with non-compounding treatment have greater inhibition than concoctions and have a very weak relationship between sensitivity and resistance.

Keywords: Antibiotics, Pulveres, Finished Medicines, Sensitivity

The Effectiveness of Homecare Pharmacy to Increase Patients' Knowledge and Adherence to Therapy: A Six (6) Months' Study in Hypertensive Patients

Ratna Kurnia Illahi[1*], Firiyal Okta Safarah[1], Hananditia Rachma Pramestutie[1], Ayuk Lawuningtyas Hariadini[1]

[1] Department of Pharmacy, Faculty of Medicine, Universitas Brawijaya
*Email: ratna.illahi@ub.ac.id

Abstract

Objective: Hypertension is a chronic disease that frequently affects the community, could lead to many complications, and cause mortality. These complications contributed to 9.4% deaths in the world each year, mostly due to stroke and heart disease. Patients' knowledge about hypertension and adherence to medication highly affects the success of therapy. This study aimed to examine the effectiveness of homecare pharmacy to increase patients' knowledge and adherence to anti-hypertensive treatment in a six (6) months' study. **Method:** It was designed as an experimental study with one control group (usual counselling) and one treatment group (homecare). The subjects were 79 patients (n control=39, n treatment=40) taken from 8 pharmacies in Malang by using cluster random sampling, with inclusion criteria included age ≥ 18 years old, living with family, using single or combination anti-hypertensive drugs, and able to communicate both oral and written. The instrument used in this study was questionnaire that had been modified from the standard questionnaire to measure the level of knowledge, and had been tested for validity and reliability. Patients' adherence to therapy was measured by comparing average blood pressure at month 0 and month 6.
Result: The independent t-test analysis showed that there was no significantly difference in the level of knowledge between control and treatment group (p= 0.148). Moreover, the result also showed that there was no increase in adherence to therapy, as the average blood pressure was higher after 6 months' study.
Conclusion: Homecare pharmacy was not effective to increase patients' knowledge and adherence to hypertension therapy in a six (6) months' study.

Keywords: hypertension, homecare pharmacy, knowledge, adherence

The Correlation of Medication Adherence to Clinical Outcomes and Quality of Life for Type 2 Diabetes Mellitus Patients

Kiki Rawitri[1], Khairunnisa[1]*, Wiryanto[1]

[1]Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara, Medan, Indonesia
*Email: khairunnisa7@usu.ac.id

Abstract

Objective: This study aimed to determine the relationship between medication adherence to clinical outcomes and quality of life of type 2 DM patients.
Method: This study used a cross-sectional study design involving 40 types 2 DM patients who met the inclusion criteria at a community pharmacy in Medan city from August - September 2020. Compliance level data were obtained using the MMAS-8 (*Morisky Medication Adherence Scale-8*) questionnaire, data on random blood glucose levels and HbA1C values were obtained from direct examination of patients, and data on patient quality of life were obtained using the EQ-5D-3L questionnaire. The data were analyzed using the Spearman Rho correlation test.
Result: The results showed that the average patient had a moderate level of adherence with an average HbA1C value of 9.1%, random blood glucose of 280 mg/dl, and quality of life of 84.7%. The results of the correlation test showed a significant relationship between the level of adherence and clinical outcome with a moderate correlation value at random blood glucose (r = -0.591) and a strong correlation value on HbA1C (r = -0.817). The relationship between the level of adherence and quality of life had a weak correlation value (r = 0.233), this indicates that the quality of life can improve with increasing medication adherence.
Conclusion: Based on the results of the study, it can be concluded that the level of patient treatment adherence greatly affects the clinical outcome and quality of life of type 2 DM patients.

Keywords: Type 2 diabetes mellitus, Adherence, Clinical outcome, Quality of life.

Implementation of Health Education in The Fourth Step at Posyandu to Prevent Anemia Mother

Mien[1], Siti Hadrayanti Ananda[2], Diah Indriastuti[3*]

[1,2] Nursing Science Program, STIKes Karya Kesehatan
[3] Nutrition Science Study Program STIKes Karya Kesehatan
*Email: nsdiahindri@gmail.com

Abstract

Anemia is an indirect cause of death for pregnant women and women who give birth due to bleeding. One of the inability of the uterine muscles to contract is caused by anemia. The role of posyandu, especially in the fourth and fifth steps as a stage of individual health promotion, should prevent anemia in mothers.
Objective: The purpose of this study was to obtain an overview of how the implementation of the functions of the fourth steps in posyandu to preventing anemia mothers.
Methods: This research is qualitative research with a phenomenological approach, in which the sample to be used is 8 service providers for the fourth steps, 2 mothers who use posyandu services, immunization officer and 1 analyst laboratory officer. Samples were taken using accidental sampling in the working area of Puskesmas Poasia.
Result: This This study shows the results in the form of 3 themes. The themes are Executor, Pandemic Period, Incentive, that describe the efforts of cadres to preventing the incidence of anemia in mothers
Conclusion: the implementation of the functions the fourth step in the posyandu has not been implemented according to the guidelines. The implementation was taken over by the midwife because cadres felt unable to provide counseling.

Keywords: Anemia, Cadres, Integrated Service Posts, Pregnant Women, Midwives

Assessment of Healthcare Professional's Knowledge, Skill, Motivation, and Commitment on Clinical Pathways Implementation in Hospital of Universitas Sumatera Utara

Ivana Alona[1,2], Juliandi Harahap[2*], Andike Aribi[1], Riyadh Ikhsan[1,3]

[1]Hospital of Universitas Sumatera Utara
[2]Department of Community Medicine, Faculty of Medicine, Universitas Sumatera Utara
[3]Department of Dermatology and Venereology, Faculty of Medicine, Universitas Sumatera Utara
*Email: juliandi@usu.ac.id

Abstract

Objective: This study aims to assess healthcare professionals' knowledge, skills, motivation, and commitment on clinical pathways (CPs) implementation in Universitas Sumatera Utara (USU) Hospital.
Method: This cross sectional study was conducted in USU Hospital. Sixty five respondents were selected using quota sampling including 10 specialists, 50 nurses, and 5 pharmacists. A questionnaire was developed, validated, distributed online to obtain healthcare professional's knowledge, skill, motivation, and commitment on CPs implementation. The data was analysed using Pearson correlation with $p<0.05$
Result: The results suggested that the healthcare professionals in USU Hospital had high knowledge, moderate skill, high motivation, and high commitment in CP implementation. We also found positive correlations between knowledge and skill ($p=0.039$), motivation and skill ($p=0.001$), commitment and skill ($p=0.001$), and motivation and commitment ($p=0.001$) on CPs implementation.
Conclusion: CP is a structured integrated care plan containing a clear and solid pattern that may be used as a reminder for healthcare professionals aiming to improve clinical outcome and control costs. USU Hospital healthcare professional's knowledge, motivation and commitment on CPs implementation are considered highly adequate but skill was moderate. Our findings highlighted that motivation is prominently related with healthcare professional's commitment on the implementation of CPs in USU Hospital. This study recommended that the hospital management explores effective strategies to improve skills of communication, collaboration and practice adherence in Clinical Pathway implementation among the integrated healthcare professionals. Hospital should also transform the efforts into the culture of the organisation.

Keywords: integrated healthcare, clinical pathway, knowledge, skill, motivation, commitment

Child Development Assessment By Using Indonesian Pre-Screening Developmental Questionnaire And The Comparison Of Knowledge Levels Of Health Cadres And Mothers About Child Growth And Development In Deli Serdang District

Juliandi Harahap[1*], Lita Sri Andayani[2], And Rina Amelia[3]

[1,3]Department of Community Medicine, Faculty of Medicine, Universitas Sumatera Utara
[2]Department of Health Education and Behavioral Sciences, Faculty of Public Health, Universitas Sumatera Utara
*Email: juliandi@usu.ac.id; drdrjuliandiharahapma@gmail.com

Abstract

Objectives: The role of parents and health provider is very important in process of child growth and development. This study aims to assess the development of children aged below 12 months based on Indonesian Pre-screening Developmental Questionnaire, *Kuesioner Pra Skrining Perkembangan* (KPSP) and to compare the knowledge levels of health cadres and mothers about child growth and development.
Methods: This research was a cross-sectional study, with research subjects consist of 100 children aged 0-24 months, 100 mothers and 60 cadres in Deli Serdang District. These subjects were selected by using consecutive sampling technique and interviewed using a structured questionnaire that has been validated and KPSP. The categorized variables were analyzed descriptively in the form of proportions, while the differences in the scores for the knowledge level of cadres and mothers were analyzed using the Mann-Whitney U test with a significance level of $p < 0.05$.
Results: The results revealed that 13% of children had developmental deviations, 25% had questionable developments and 62% had normal development according to age. The results also showed that the knowledge level of cadres and mothers in the good category was only 16.7% and 9% respectively. However, there was no significant difference between cadres' knowledge score (12.33±2.06) and mothers' knowledge score (12.09±1.97) about child growth and development ($p>0.05$).
Conclusion: The knowledge of cadres and mother is still low and development of children is not optimal. Therefore, cadre empowerment and maternal education are absolutely necessary to improve child growth and development.

Keywords: Child Development, KPSP, Knowledge, Cadre

The Role Of Family Support, Family Functions, And Peer Group Support For The Quality Of Life Of The Elderly In Medan Tuntungan District, Medan City

Juliandi Harahap[1*], Lita Sri Andayani[2], And Rina Amelia[3]

[1,3]Department of Community Medicine, Faculty of Medicine, Universitas Sumatera Utara
[2]Department of Health Education and Behavioral Sciences, Faculty of Public Health, Universitas Sumatera Utara
*Email: juliandi@usu.ac.id; drdrjuliandiharahapma@gmail.com

Abstract

Objective: Increasing age alone without improving the quality of life of the elderly can cause various problems. This study aimed to assess the quality of life of the elderly based on physical, psychological, social and environmental domains, and to analyze relationship of family support, family function, and peer group support to elderly quality of life.
Methods: This cross sectional study was conducted at Puskesmas Medan Tuntungan, a sample of 80 elderly was selected by consecutive sampling technique and interviewed using structured questionnaires. The quality of life was assessed using WHOQoL-BREF questionnaire. Fisher's exact test and logistic regression analysis with a significance level of $p < 0.05$ were used for analysis.
Results: The results showed 67.5% of the quality of life of the elderly in Medan Tuntungan was low, especially in the physical domain (43.8%). The role of family support for elderly majority in moderate category (50%), family functions for elderly majority in healthy category (91.3%) and peer group support for elderly majority in moderate category (86.3%). Fisher's exact tests showed significant relationship family support, peer group and quality of life of elderly (p=0.001). There is no significant relationship between family function and quality of life of elderly (p>0.05). Logistic regression tests showed the most dominant role was family support (OR=3.5).
Conclusion: The quality of life for the elderly is still low. The most important role in improving the quality of life is family support. Therefore, it's needed to educate family members to provide more attention and health support for the elderly.

Keywords: Elderly, Quality of Life, Family Support.

Analysis Of Serum Total Immunoglobulin E (Ige) Levels And Eosinophil Counts In Elementary School-Age Orphans With Soil Transmitted Helminths Infections

Ren Amirah Siregar[1], Juliandi Harahap[2*], Rina Amelia[2], Nurfida Khairina Arrasyid[3]

[1]Master of Tropical Medicine , Faculty of Medicine, Universitas Sumatera Utara
[2]Department of Community Medicine, Faculty of Medicine, Universitas Sumatera Utara
[3]Department of Parasitology, Faculty of Medicine, Universitas Sumatera Utara
*Email: juliandi@usu.ac.id

Abstract

Objective: This study aimed to determine the prevalence of STHs infections in elementary school-age orphans and to compare the serum total IgE levels and total eosinophil counts in children with STHs and children without STHs.
Methods: A cross sectional study was conducted at the orphanage in Medan Deli Sub-District with 60 elementary school-age orphans as the subject. Data collection was carried out by examining serum total IgE levels, hematology and feces examination. Respondents were selected using consecutive sampling tehnique. Informed consent was obtained from the guardian of orphanage. The STH infection variables were analyzed descriptively and presented in the form of proportions, while the variables of serum total IgE levels and eosinophil counts were analyzed using the Mann-Whitney U test with a significance level of $p<0.05$.
Results: We found 31 (51.7%) children infected with *Ascaris lumbricoides, Trichiuris trichiura* and Hookworm 16.7%, 18.3% and 16.7%, respectively. The average serum total IgE level in children with STHs 136.7 IU/ml and in children without STHs 152.6 IU/ml, but the statistical tests showed no significant difference in the two groups ($p=0.683$). The average eosinophil counts in children with STHs 4.6% and in children without STHs 5.9%. The statistical tests also showed no significant difference in the two groups ($p=0.077$).
Conclusion: STHs infection is still high in the elementary school-age group. There were no significant differences in serum total IgE levels and eosinophil counts in children with STHs compared to children without STHs.

Keywords: STHs, IgE, eosinophil, elementary school-age children

Potential of Water Extract fo Kirinyuh Shoots (*Chromolaena Odorata* (L.) King & H. Rob.) as Antidiabetic

Puspa Sari Dewi[1]*, Catur Putri Rahmawati[1], Raina Davita[1], Sri Wahyuningsih[1], Vina Septiani[1]

[1]Faculty of Pharmacy, Universitas Jenderal Achmad Yani, Cimahi, Indonesia
*Email: s4rid3wi.puspa@gmail.com

Abstract

Objective: Kirinyuh (*Chromolaena odorata* (L.) King & H. Rob.) is an herb that is empirically believed to have properties in lowering blood glucose levels. This research was conducted to prove scientifically the potency of water extract of kirinyuh shoots as an antidiabetic.
Method: The test method used was in vivo with the glucose tolerance method in *Wistar* rats and in vitro with the method of inhibition of the α-glucosidase enzyme. In vivo testing was carried out by dividing the animals into 6 groups, namely control, comparator glibenclamide 0.45 mg/kg BW, comparator acarbose 4.5 mg/kg BW, the test dose groups (40, 80, 160 mg/kg BW) while testing in vitro it was measured at a maximum wavelength of 401.1 nm with the standard acarbose.
Result: The in vivo test results showed that water extract of kirinyuh shoots could reduce blood glucose levels compared to the control group, while the in vitro test results showed that the water extract of kirinyuh shoots was able to inhibit α-glucosidase enzyme activity with an IC_{50} value of 157.24 µg/ml and the IC_{50} value of acarbose was 39.56 µg/ml.
Conclusion: It can be concluded that the water extract of kirinyuh shoots has potential as an antidiabetic.

Keywords: Kirinyuh, *Chromolaena odorata* (L.) King & H.Rob., diabetes, glucose tolerance, *α-glucosidase enzyme*

The Effect of Incubation Time Towards Cytotoxicity Activity of Curcumin on Melanoma B16f10 Cell Lines

Jansen Silalahi[1*], Rosidah[2], Dewi Pertiwi[3], Abdi Wira Septama[4], Denny Satria[3]

[1]Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Universitas Sumatera Utara.
[2]Department of Pharmacology, Faculty of Pharmacy, Universitas Sumatera Utara.
[3]Department of Pharmaceutical Biology, Faculty of Pharmacy, Universitas Sumatera Utara.
[4]Research Center for Chemistry, Indonesian Institute of Sciences
[*]Email: jansen@usu.ac.id

Abstract

Objective: Melanoma is the most common type of malignant skin cancer. Melanoma is highly resistant to conventional chemotherapy and radiotherapy. Curcumin has been investigated in a variety of human cancers including pancreatic, prostate, breast, head and neck cancer. The aim of this study was to determine the effect of incubation time towards cytotoxic activity of curcumin on melanoma B16F10 cells.
Method: Cytotoxic activity was determined with [3- (4,5-dimethyltiazole-2-yl) -2,5 diphenyltetrazolium bromide] (MTT) method and incubation time were 24; 48 and 72 hours.
Results: Cytotoxic activity (IC_{50}) were measured 13.46 ± 0.14 µg/mL; 6.50 ± 0.10 µg/mL and 6.11 ± 0.06 µg/mL respectively.
Conclusion: The results reveal that the longer of incubation time are more effective to inhibits B16F10 cells growth..

Key words: Curcumin, melanoma, cytotoxicity, incubation time, B16F10 cells.

Organizing Committee

Faculty of Pharmacy
Universitas Sumatera Utara
https://ffar.usu.ac.id/
farmasi@usu.ac.id