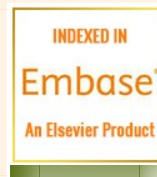




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CHEMICAL SYNTHESIS OF BILE
ACIDS AND THEIR PHYSICO-
CHEMICAL PROPERTIES

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AN OVERVIEW ON COVID-
19 OUTBREAK: EPIDEMIC
TO PANDEMIC

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Volume 13 (2022) - Issue 10, October

REVIEW ARTICLES

1. VARIOUS HERBAL PLANTS ARE USED AS ANTICANCER AGENTS

Cancer is the world's second-largest cause of death. Although substantial progress has been made in treating and controlling cancer progression, there are still significant flaws and space for improvement. During chemotherapy, several unfavourable side effects might arise. Natural-derived substances are attracting scientific and academic attention since they are thought to have fewer hazardous sid...

C. Sangavi * and K. Santhamara

Department of Pharmaceutics, Periyar College of Pharmaceutical Sciences, Tiruchirappalli, Tamil Nadu, India.

DOI: 10.13040/IJPSR.0975-8232.13(10).3807-23

3807-3823

Abstract

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2. A SYSTEMATIC REVIEW OF AN INVASIVE PLANT SPECIES: VERBESINA ENCELIOIDES (CAV.) BENTH. & HOOK. F. EX A. GRAY

An introduced, non-native, exotic, or alien species are those that grow in areas outside of their natural habitats. They get introduced deliberately or accidentally into new areas by anthropogenic activities or naturally through water, wind, etc. In non-native areas, these species invade rapidly due to the non-availability of natural enemies (prey) in a new habitat. Therefore, these fast-spreading...

Kuljinder Kaur *, M. C. Sidhu and A. S. Ahluwalia

Department of Botany, Government College Hoshiarpur, Punjab, India.

DOI: 10.13040/IJPSR.0975-8232.13(10).3824-32

3824-3832

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3. A WAY OF COMBATING ANTIMICROBIAL RESISTANCE THROUGH QUORUM SENSING

Quorum sensing is a peculiar mechanism of microbial communication through the induction of various signalling autoinducer molecules having several gene expression regulatory activities of different virulence factors that control microbial. This enables a systematic path of inhibiting microbial growth and its infection production efficacy by indirectly regulating the Quorum sensing activity of the ...

Shabnam Thakur *, Rupali Sharma and Babesh Yadav

Amity Institute of Pharmacy, Amity University Haryana, Manesar, Gurgaon, Haryana, India.

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3833-3840

Abstract

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4. EFFECT OF PARATHYROID HORMONE LEVELS ON PERIODONTAL STATUS IN PREGNANT WOMEN: A REVIEW

Periodontitis is a multifactorial disease. It has several associations with hormonal fluctuations; the body undergoes several physiological hormonal mechanisms. In several physiological conditions, hormonal fluctuations have been observed. One such condition is pregnancy. Several hormones are at play during pregnancy; one such hormone is PTH. Parathyroid hormone is essential to increase the matern...

Aditi Chaturvedi, Vidushi Sheekari *, Amit Bhardwaj, Anurag Bhatnagar, Alisha Chugh, Megha Tomar and

Kevin Raj

Department of Periodontology, SGT Dental College and Research Centre, Gurugram, Haryana, India.

DOI: 10.13040/IJPSR.0975-8232.13(10).3841-44

3841-3844

Abstract

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5. A REVIEW ON PREPARATION & METHODS OF CURCUMIN NANOPARTICLES AND ITS APPLICATION

Curcumin is a highly potent, nontoxic, bioactive agent found in turmeric and has been known for centuries as a household remedy to many ailments. The main active ingredient of turmeric is curcumin, a polyphenol that helps prevent and control neurological, respiratory, cardiovascular, metabolic, inflammatory and autoimmune diseases and some cancers. The major drawbacks of curcumin are low absorptio...

Vijaya Lakshmi Jampela *, Swarupa Arvapalli

Joginipally B. R. Pharmacy College, Molinabad, Hyderabad, Telangana, India.

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3845-3856

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RESEARCH ARTICLES

12. ANTIAPOPTOTIC MECHANISM FOR THE IMPLEMENTATION OF THE HEPATOPROTECTIVE EFFECT OF PYRIMIDINE DERIVATIVES

The present study aimed to study the effect of the drug Xymedon and its conjugate with L-ascorbic acid exhibiting hepatoprotective activity on the apoptosis of rat liver cells against the background of the influence of hepatotoxic agent tetrachloromethane. Though the general effects of Xymedon and its conjugates with various biogenic acids have been studied, the molecular markers affected by the c...

A. A. Parfenov, A. B. Vyshhtakalyuk *, I. V. Galyanetsdinova, V. E. Semenov and V. V. Zubov
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 Russia.*

DOI: 10.13040/IJPSR.0975-8232.13(10).3922-3931

3922-3931

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13. EFFECT OF AQUEOUS EXTRACT OF CRYPTOLEPIS SANGUINOLENTA ADMINISTRATION ON THE METABOLISM OF CHLOROQUINE VIA CYTOCHROME P450 ISOZYMES

Concurrent administration of herbal medicines and conventional drugs is a common practice globally, especially as the patronage of medicinal plants increases across the world. This study aimed to determine the effect of *Cryptolepis sanguinolenta* administration on the metabolism of chloroquine by evaluating specific Cytochrome P450 isozymes. Reconstituted freeze dried *Cryptolepis sanguinolenta* was ...

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3932-3939

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14. INVESTIGATING AND SEQUENCING OF THIOL-SPECIFIC ANTIOXIDANT GENE IN A SYRIAN STRAIN OF LEISHMANIA TROPICA

Cutaneous leishmania is a common medical problem in Syria, which has become yet more widespread in most of the Syrian governorates after the current war. An effective vaccine is needed to prevent a large scale spread of leishmaniasis in the country. In this regard, protein vaccination has shown promising prospects of creating this much-needed vaccine. Thiol Specific Antioxidant (TSA) plays a funda...

Hassan Al. Khouri * and Shaden Haddad
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DOI: 10.13040/IJPSR.0975-8232.13(10).3940-43

3940-3943

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15. NEUROTHERAPEUTIC EFFECT OF BERGENIN ON CUPRIZONE-INDUCED DEMYELINATION BY REGULATING NEUROLOGICAL FUNCTIONS ASSOCIATED WITH MOTOR ACTIVITY, OXIDATIVE STRESS, AND HISTOLOGICAL ALTERATIONS IN THE CORPUS CALLOSUM OF C57BL/6 MICE

Multiple sclerosis (MS) is a chronic demyelinating disease of the central nervous system characterized by Neuroinflammation, oligodendrocyte loss, and axonal pathology. Bergenin, a chief phytochemical constituent of *Bergenia* species, has been shown to exert anti-inflammatory and antioxidant effects. The cuprizone (CPZ) model is an established mouse model of MS and causes demyelination and induces ...

Akila Murugan and Sumathi Thangarajan *
*Department of Medical Biochemistry, Dr. A. L. M Post Graduate Institute of Basic Medical Sciences, University of
 Madras, Taramani, Chennai, Tamil Nadu, India.*

DOI: 10.13040/IJPSR.0975-8232.13(10).3944-52

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16. A TRAILBLAZING ENDEAVOUR TO EXPLORE THE ROLE OF TULASI PUSHPA AS SANDHANA DRAVYA (FERMENTING AGENT) IN SANDHANA KALPANA

Sandhāna kalpanā (Fermentation process) is a unique procedure implemented in Ayurveda for the preparation of fermented alcoholic and acidic medicinal formulations. Sandhāna dravyās (fermenting agents) act as fermentation initiators in them. The commonly used Sandhāna dravyās are Dhātakupūṣpā (flowers of *Woodfordia fruticosa*), madhūkapūṣpā (flowers of *Madhuka indica*) and yeast. Almost...

Aansu Susan Varghese *, N. K. Sangeetha Nandakumar, Abhayakumar Mishra, Arun Mohanan, P. K. Vineeth
 and N. V. Ramesh
*Department of Rasashastra and Bhaishajya Kalpana (Medicinal Chemistry and Pharmacy), Amrita School of
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Title	Views	PDF	Cited
<p>1. CONVALESCENT PLASMA THERAPY: A PROMISING APPROACH IN THE TREATMENT OF COVID-19</p> <p>At present, the whole world fronting a very challenging situation of the pandemic, severe acute respiratory syndrome due to coronavirus (COVID-19). Today, COVID-19 is spreading rapidly in every part of the world; these pandemic affected billions of people. This virus is found as a new human pathogen. However, currently, there is no hasty therapy available, which will provide fruitful results in th...</p> <p>D. E. Ahire ¹, N. V. Sonawane, R. K. Surana, R. K. Jadhav, D. D. Sonawane and A. A. Shah Department of Pharmaceutics, 333, Divine College of Pharmacy, Satara, Nashik, Maharashtra, India. DOI: 10.13040/IJPSR.0975-8232.11(09)4078-86</p> <p>Abstract HTML Full Text PDF Citation</p>	1962	971	3
<p>2. POTENTIAL DRUG CANDIDATES FOR TREATMENT OF COVID-19</p> <p>The late December of 2019 witnessed an outbreak of viral pneumonia of unknown etiology (VPUE) in the Wuhan city of Hubei province, China. Later it was identified as a novel strain of β-genus Coronavirus, which is similar to the Severe Acute Respiratory Syndrome (SARS) virus, which was a global pandemic during 2002-03. This novel coronavirus is rapidly spreading with an R0 of 2 and has an incubati...</p> <p>B. Kumudhavani ¹, S. Kalinivel, S. D. Muthu, A. Jeyasuresh and P. Radha Department of Pharmacognosy, College of Pharmacy, Madras Medical College, Chennai, Tamil Nadu, India. DOI: 10.13040/IJPSR.0975-8232.11(09)4087-94</p> <p>Abstract HTML Full Text PDF Citation</p>	2021	666	0
<p>3. INHALATION OF ESSENTIAL OILS: COULD BE ADJUVANT THERAPEUTIC STRATEGY FOR COVID-19</p> <p>The current pandemic of the novel coronavirus (SARS-CoV-2) termed as COVID-19 is the third recorded blowback of an animal coronavirus to a human being in the last twenty years. The pandemic is originated from China and currently impacted more than 205 countries worldwide (as on dated 2nd April 2020). This pandemic is not only affecting human life but also has questioned the worldwide status of hea...</p> <p>T. Patne, J. Mahore ¹ and P. Tokmurke Dr. D. V. Patil Institute of Pharmaceutical Sciences and Research, Pimpri</p>	72215	3273	11

Pune, Maharashtra, India

DOI: 10.13040/IJPSR.0975-8232.11(9)4095-413

Abstract

HTML Full Text

PDF

Citation

4. THE NOVEL CORONA VIRUS (nCoV2) SEEMS TO DEFY ALL LAWS OF VIROLOGY

1759

584

0

Amongst the known coronaviruses, many were responsible for causing disease in humans knowingly from the common cold to acute severe respiratory syndrome. The novel coronavirus, nCoV-2 has been implied to cause increasingly severe damage to public health besides demolishing the global economy with a staggering figure of continuous rise in mortality within the afflicted cases in almost every country...

P. V. Dhade, K. Sethiya, T. C. Subhadarsanee and K. Durg

4104-4113

Department of Periodontics, Sharad Pawar Dental College, Datta Meghe Institute of Medical Sciences (Deemed to be University), Sawangi (Mogha)

Wardha, Maharashtra, India

DOI: 10.13040/IJPSR.0975-8232.11(9)4104-13

Abstract

HTML Full Text

PDF

Citation

5. MANAGEMENT AGAINST COVID-19 THROUGH NUTRITIONAL SUPPLEMENTATION TO BUILD ADAPTIVE IMMUNITY – A SYSTEMATIC REVIEW

1615

641

0

As humanity is progressing, many new borne infections are borne, and the stability and efficiency of the human body are being tested. Today the World is fighting with a deadly Novel infection named Corona Virus Disease. The aim of this systematic review is to find out the efficacy of Nutritional Interventions against the infections caused in the body due to pathogens. Further, the recommendations ...

L. Sharma

4114-4122

Dietetics and Applied Nutrition, Gurugram, Haryana, India

DOI: 10.13040/IJPSR.0975-8232.11(9)4114-22

Abstract

HTML Full Text

PDF

Citation

6. CHIA SEED IN HEALTH AND DISEASE PREVENTION: PRESENT USAGE AND FUTURE PERSPECTIVES

3147

818

0

Salvia hispanica L. Well known as chia is gaining popularity day by day due to its nutritional value. This plant is native to Mexico, belonging to family Labiatae / Laminacea, and it was used as a superfood from ancient times. Chia is valued more due to its oil content as it consists of omega -3-alpha linolenic acid in higher amount along with various types of other nutrients, e.g., proteins, diet...

D. Pal* and K. Raj

4123-4133

Department of Pharmaceutical Sciences, Guru Ghasidas Vishwavidyalaya (Central University), Bilaspur, Chhattisgarh, India

DOI: 10.13040/IJPSR.0975-8232.11(9)4123-33

Abstract

HTML Full Text

PDF

Citation

7. ENDOPHYTIC FUNGI FROM MANGROVES – REVIEW

1917

670

0

Mangrove plants are used in medicines, and extracts from mangrove species have proven inhibitory activity against human, animal, and plant pathogens. Endophytic fungi are an important component, are universal, and occur within all know plants, including a broad range of hosts in various ecosystems, and therefore play an important role in the natural environment. Numerous species of mangrove produc...

K. Kuzhalvaymani, L. Elizabethjacqueline and T. S. Subha *

4134-4143

PG & Research Department of Botany, Bharathi Women's College, Chennai, Tamil Nadu, India

DOI: 10.13040/IJPSR.0975-8232.11(9)4134-43

Abstract

HTML Full Text

PDF

Citation

8. EMPAGLIFLOZIN: A REVIEW ON ANALYTICAL AND BIO-ANALYTICAL METHODS

1593

666

0

Diabetes mellitus is a metabolic disorder that causes high levels of blood glucose level in that 90% of the diabetic population accounts for type 2 diabetes mellitus it also has secondary complications like Cardiovascular disorder, Renal impairment, and susceptibility to infections. Empagliflozin is a potentially

highly selective Sodium-glucose co-transportase-2 (SGLT-2) inhibitor used for the tre...

S. Rahul *, B. P. Kumar and H. R. Ashish

4144-4151

Department of Pharmaceutical Analysis, Sri Adichunchanagiri College of Pharmacy, Adichunchanagiri University, Mandya, Karnataka, India

DOI: 10.13040/IJPSR.0975-8232.11(9).4144-51

Abstract

HTML Full Text

PDF

Citation

9. VERSATILITY OF BENZIMIDAZOLE AND ITS DERIVATIVES; AN INSIGHT

1044

800

2

Benzimidazole, a fused heterocyclic moiety containing benzene and imidazole, has gained considerable attention in the field of medicinal chemistry due to its wide array of pharmacological activities. Be it as a antifungal, anticancer agent, proton pump inhibitors, anthelmintic, anti-microbial, analgesic, it has become an intrinsic part of the pharmaceutical world. The presence of Nitrogen in its h...

A. Saxena, V. Hegde, S. Mitalikdesai and M. Maste *

4152-4173

Department of Pharmaceutical Chemistry, KLE College of Pharmacy, KLE Academy of Higher Education and Research, Belagavi, Karnataka, India

DOI: 10.13040/IJPSR.0975-8232.11(9).4152-73

Abstract

HTML Full Text

PDF

Citation

10. MEDICATED TATTOOS: A RECENT DRUG DELIVERY APPROACH IN MEDICAL SCIENCE

1658

648

0

Transdermal drug delivery systems are potential sources of administrating drugs through and have certain advantages as delivering a therapeutically effective amount of drug across a patient's skin. Medicated Tattoos is one of the upcoming approaches in transdermal drug delivery. Researches reveal that humans from the generations have used tattoos for various reasons like symbol of rank, religious/s...

S. Bahadur and P. Kumar *

4174-4179

Doon Valley Institute of Pharmacy and Medicine, Karnal, Haryana, India

DOI: 10.13040/IJPSR.0975-8232.11(9).4174-79

Abstract

HTML Full Text

PDF

Citation

11. A BRIEF REVIEW ON RECENT ADVANCEMENTS AND BIOLOGICAL ACTIVITIES OF ARYL PROPIONIC ACID DERIVATIVES

1068

453

0

Arylpropionic acid derivatives are an important class of NSAIDs. Ibuprofen, 2- (4-isobutylphenyl) propionic acid, is known as NSAIDs. Arylpropionic acid derivatives have a broad biological activity, including antibacterial, anticonvulsant and anticancer activity, analgesic, and anti-inflammatory. In addition to the most powerful ingredients used in analgesic and antipyretic fields, such as ibuprof...

P. Kumar *, Sangam and M. I. Ahmad

4180-4188

Department of Pharmaceutical Chemistry, Shri Gopichand College of Pharmacy, Baghpat, Uttar Pradesh, India

DOI: 10.13040/IJPSR.0975-8232.11(9).4180-88

Abstract

HTML Full Text

PDF

Citation

12. PRESENT SCENARIO OF HEPATOPROTECTIVE POTENTIAL OF MEDICINAL PLANTS: AN UPDATED REVIEW

1012

431

0

The liver is the principal site for metabolism and excretion in the body. The human liver metabolizes substances by various biochemical pathways, including oxidation, reduction, hydration, condensation, hydrolysis, conjugation or isomerization. Disorder of any of therefore mentioned process may lead to liver cell injury, what we call as hepatotoxicity, which in turn leads to many diseases. Such di...

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4189-4200

Faculty of Pharmacy, SAGE University, Indore, Madhya Pradesh, India

DOI: 10.13040/IJPSR.0975-8232.11(9).4189-00

Abstract

HTML Full Text

PDF

Citation

13. EFFICACY AND MECHANISM OF ACTION OF MORINGA OLEIFERA IN DIABETES

2271

660

0

Diabetes mellitus (DM) is a globally spreading metabolic disorder with a high incidence rate. About 425 million cases took place in 2017 and expected to rise up to 693 million by 2045. In diabetes, the patient

elevation of blood glucose level occurs due to the deformation of insulin receptor action/secretion or both. Long term increases in blood glucose level causes chronic effects such as dysfunc...

Sheha, M. Kaurav and S. Kumar *

4201-4213

Department of Pharmaceutical Sciences, Indira Gandhi University,

Meerpur, Haryana, India

DOI:10.13040/IJPSR.0975-8232.11101.4201-13

Abstract

HTML Full Text

PDF

Citation

14. GARLIC (ALLIUM SATIVUM): PHARMACEUTICAL USES FOR HUMAN HEALTH

4205

986

2

The medicinal properties of Garlic are well known for a long time. Garlic is recommended as a nutritive element in the treatment of various health problems and the prolongation of human life. The present review article on garlic is to explore ancient phytomedicinal uses with modern scientific knowledge. Garlic cloves contain a colorless, odorless, soluble compound called alliin, water, and vascula...

R. N. Singh *, P. Kumar, N. Kumar and D. K. Singh

4214-4228

Department of Zoology, Maharana Pratap P. G. College Jhansi Division,

Gorakhpur, Uttar Pradesh, India

DOI:10.13040/IJPSR.0975-8232.11101.4214-28

Abstract

HTML Full Text

PDF

Citation

15. BIOELECTRONIC MEDICINES: INNOVATION IN DISEASE TREATMENT

2819

772

0

Innovation in technology is required to change the world. Bioelectronic medicine is the consolidation of molecular medicine, neuroscience, engineering, and computing to develop a device to diagnose and treat diseases. The mechanisms of Bioelectronic medicine for neural control of a biological process that underlie disease and the development of devices to modulate these specific neural circuits a...

D. A. Patel * and S. Chaudhary

4229-4237

Anhant School of Pharmacy and BRL Adalaj, Gandhinagar, Gujarat, India

DOI:10.13040/IJPSR.0975-8232.11101.4229-37

Abstract

HTML Full Text

PDF

Citation

16. SUSTAINABLE USE OF HIGH ALTITUDE MEDICINAL AND AROMATIC PLANT FOR SOCIO-ECONOMIC DEVELOPMENT IN UTTARAKHAND: A REVIEW

2061

719

2

The present paper reveals the socio-economic benefits for the peoples of the Uttarakhand state. The demand for medicinal and aromatic plants of Uttarakhand is quite inflated, and many of these plants grow only in the Himalayan states. The State has diverse agro-geo climate conditions, which is most suitable for Medicinal and aromatic plant cultivation. Uttarakhand is blessed with a variety of soil...

P. Nairwal * and N. Singh

4238-4243

School of Pharmacy, Graphic Era Hill University, Clement Town, Dehradun,

Uttarakhand, India

DOI:10.13040/IJPSR.0975-8232.11101.4238-43

Abstract

HTML Full Text

PDF

Citation

17. A STATE OF THE ART REVIEW ON SELF EMULSIFYING DRUG DELIVERY SYSTEM

942

394

1

Solubility plays a vital role in achieving the therapeutic efficacy of a drug from a dosage form. Advances in molecular screening techniques for identification of potential drug molecules investigated an increased number of new pharmacologically active lipophilic compounds that are poorly water-soluble about 40% of new chemical entities have been discovered as poorly water-soluble. Numbers of tech...

A. Prameelarani, M. Desavathu * and L.S.Reddy

4244-4260

Department of Pharmaceutics, University College of Pharmaceutical

Sciences, Acharya Nagarjuna University, Guntur, Andhra Pradesh, India

DOI:10.13040/IJPSR.0975-8232.11101.4244-60

Abstract

HTML Full Text

PDF

Citation

RESEARCH ARTICLES

- | Title | Views | PDF | Cited |
|---|-------|------|-------|
| <p>18. MOLECULAR DOCKING STUDY REVEALS THE POTENTIAL REPURPOSING OF HISTONE DEACETYLASE INHIBITORS AGAINST COVID-19</p> <p>The outburst of new coronavirus (COVID-19) infections, firstly appeared in Wuhan in 2019, has massively expanded to the whole world. At the end of March 2020, the rapid spread of the infection happened in about 206 countries around the globe. At the moment, the statistics of WHO on coronavirus pandemic revealed total infected cases of 21,770,000 and more than 77,000 deaths all over the world, with...</p> <p>M. F. A. Mohamed ¹, G. E. A. Abu-Rahma, A. M. Hayallah, M. A. Abd, A. Nafady and E. Samir
 <i>Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Sohag University, Sohag, Egypt</i>
 DOI:10.13040/IJPSR.0975-8232.11109.4261-70</p> <p>Abstract HTML Full Text PDF Citation</p> | 2598 | 778 | 9 |
| <p>19. C-PHYCOCYANIN OF SPIRULINA PLANTESIS INHIBITS NSP12 REQUIRED FOR REPLICATION OF SARS-COV-2: A NOVEL FINDING IN-SILICO</p> <p>SARS-CoV-2 or COVID-19 is one of the deadly pandemics faced by the world population, which has infected 7 million and claimed the lives of 0.4 million people. In spite of a few drugs available to control the pandemics, a formal vaccine is the least that the world expects under the current scenario. However, the release of a vaccine is expected to come at the cost of its own time. SARS-CoV-2 replic...</p> <p>T. K. Raj, R. Banjilikkumar, B. M. Kanthesh and T. S. Gopalanath ¹
 <i>Division of Biotechnology & Bioinformatics, School of Life Sciences, JSS Academy of Higher Education & Research, Mysuru, Karnataka, India</i>
 DOI:10.13040/IJPSR.0975-8232.11109.4271-78</p> <p>Abstract HTML Full Text PDF Citation</p> | 16676 | 1556 | 5 |
| <p>20. MOLECULAR VERSUS CONVENTIONAL TECHNIQUES FOR THE DETECTION OF STAPHYLOCOCCUS AUREUS, PSEUDOMONAS AERUGINOSA AND CANDIDA ALBICANS IN NON-STERILE PHARMACEUTICAL PREPARATIONS</p> <p>Notable progress has been made in methods that encourage the use of PCR as a rapid and accurate tool in quality evaluation of pharmaceuticals. In this study, monoplex and multiplex PCR based assays were developed and compared with standard conventional methods for rapid detection of three specified topical indicator pathogens, Pseudomonas aeruginosa, Staphylococcus aureus, and Candida albicans, in...</p> <p>K. S. El-Houssieny, M. M. Aboulwafa ¹, W. F. Elkhateb and N. A. Hassouna
 <i>Department of Microbiology and Immunology, Faculty of Pharmacy, Al-Shams University, Cairo, Egypt</i>
 DOI:10.13040/IJPSR.0975-8232.11109.4279-92</p> <p>Abstract HTML Full Text PDF Citation</p> | 1354 | 440 | 0 |
| <p>21. PHYTOCHEMICAL SCREENING AND EVALUATION OF ANALGESIC AND THROMBOLYTIC ACTIVITY OF THE CRUDE METHANOLIC EXTRACT OF CALAMUS ROTANG L. LEAVES (ARECACEAE)</p> <p>Medicinal plants abound with many phytochemicals that are effective in representing lots of pharmacological activities. The current study aimed at investigating the phytochemical and pharmacological activity of crude methanol extract of Calamus rotang L. (CRME) leaves. The analgesic activity and thrombolytic activity were examined by the acetic acid-induced writhing method, while the clot lysis e...</p> <p>S. R. Afni, S. Mitra, B. H. Khanam, M. R. Islam, N. M. Prama and M. K. Hossain ¹
 <i>Department of Pharmacy, University of Chittagong, Chittagong, Bangladesh</i>
 DOI:10.13040/IJPSR.0975-8232.11109.4293-99</p> <p>Abstract HTML Full Text PDF Citation</p> | 1469 | 650 | 0 |
| <p>22. THE EFFECT OF KEREHAU LEAF EXTRACT (CALLICARPA LONGIFOLIA LAMK.) ON LIPID RATIOS AND AORTA</p> | 1318 | 486 | 0 |

HISTOPATHOLOGY OF MALE RATS OF WISTAR STRAIN

Ethanol extract of kerehau leaves is known to have anti-inflammatory and antioxidant activities with the potential to prevent atherosclerosis. This study aims to determine the ability of kerehau ethanol extract in reducing the lipid levels, the lipid ratios, and the number of foam cells in the blood vessel walls. This study employed in-vivo and ex-vivo experiments on male rats of Wistar strain ind...

E. Susilawati^{1*}, Yeni and W. Aligita

Faculty of Pharmacy, Bhakti Kencana University, Jalan Soekarno Hatta No.

754 Bandung, Indonesia

DOI:10.13040/IJPSR.0975-8232.11(9).4300-06

4300-4306

[Abstract](#)
[HTML Full Text](#)
[PDF](#)
[Citation](#)
23. BIOLOGICALLY SYNTHESIZED SILVER NANOPARTICLES OF CURCUMA CAESIA ROXB. RHIZOME EXTRACT AND EVALUATION OF THEIR ANTIBACTERIAL ACTIVITY AGAINST MDR BACTERIA

957

414

0

Multidrug-resistant (MDR) bacterial infection is severe health concerns in the field of medicine. The researcher used green synthesized silver nanoparticles to overcome from MDR bacterial infection. Present study revealed successful synthesis of nanoparticles from Curcuma caesia aqueous rhizome extract by use of silver metal as a capping agent. Synthesized silver nanoparticles were identified by v...

M. Chaturvedi, A. Sharma, R. Rani, D. Sharma and J. P. Yadav¹

Department of Genetics, Maharshi Gyanand University, Rohtak, Haryana,

India

DOI:10.13040/IJPSR.0975-8232.11(9).4307-15

4307-4315

[Abstract](#)
[HTML Full Text](#)
[PDF](#)
[Citation](#)
24. IN-SILICO MODELING AND VALIDATION OF L-GLUTAMINASE ENZYME, AN ANTICANCER DRUG USING WEB-BASED COMPUTATIONAL TOOLS

759

333

0

The L-Glutaminase enzyme is a therapeutic agent that can be employed for the treatment of human cancer, specifically lymphocytic leukemia. Microbes are exploited commercially to produce L-Glutaminase on a large scale. The L-Glutaminase is an economic anti-cancer drug and can be easily administered into patients. The L-Glutaminase is also employed in food industries in the processing of fermented f...

P. P. Reddy

Department of Microbiology, Vivekananda Degree and PG College,

Kannurapet, Telangana, India

DOI:10.13040/IJPSR.0975-8232.11(9).4316-20

4316-4320

[Abstract](#)
[HTML Full Text](#)
[PDF](#)
[Citation](#)
25. ANTIDYSLIPIDEMIC AND ANTI-OXIDANT ACTIVITIES OF NIGELLA SATIVA SEEDS EXTRACT IN HYPERLIPIDEMIC RATS

741

321

0

This experimental study had approved by animal ethics of Central Drug Research Institute, Lucknow, and had undertaken to evaluate the antidyslipidemic and anti-oxidant activities of Nigella Sativa (N. Sativa), Hindi name Kalonji seeds extract in two models of hyperlipidemia. 1- triton and 2- cholesterol-rich high-fat diet (HFD) induced hyperlipidemia. N. Sativa and Gemfibrogil were macerated with ...

S. Saxena, P. T. Pandey, V. Kumar¹ and J. K. Saxena

Department of Biochemistry, SRMS Institute of Medical Sciences, Bareilly,

Uttar Pradesh, India

DOI:10.13040/IJPSR.0975-8232.11(9).4321-28

4321-4328

[Abstract](#)
[HTML Full Text](#)
[PDF](#)
[Citation](#)
26. DESIGN AND DEVELOPMENT OF SUPERPOROUS HYDROGEL OF AN ANTIHYPER-TENSIVE DRUG FOR GASTRORETENTIVE DRUG DELIVERY

1119

452

0

Superporous hydrogels (SPHs) is originally developed as a novel drug delivery system to retain drugs in the gastric medium by instant swelling on water absorption through open porous structure and maintain their integrity in that harsh environment. Atenolol, an antihypertensive drug with a short half-life, limited bioavailability, unstable nature at basic pH potentiated the need for developing a g...

G. R. Biswas^{1*}, S. Sahu, S. B. Majee

Division of Pharmaceutics, NSHM College of Pharmaceutical Technology,

4329-4337

[Abstract](#)
[HTML Full Text](#)
[PDF](#)
[Citation](#)

NSRFM Knowledge Campus, Kolkata-Group of Institutions, Kolkata, West

Bengal, India

DOI:10.13040/IJPSR.0975-8232.11(9).4329-37

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)

27. COMMUNITY PHARMACISTS' PERCEPTION AND EXPERIENCE IN PROVIDING LIFESTYLE ASSISTANCE TO PATIENTS WITH CARDIOVASCULAR DISEASE 934 398 1

Background: Cardiovascular disease (CVD) is the leading cause of death worldwide. Management of behavioral risk factors is recommended for primary and secondary prevention of CVDs. There is evidence that the involvement of community pharmacies in health promotion activities is successful. Objectives: This study was conducted to assess community pharmacists' perception and current practice in pro...

H. P. Sii, T. M. Khan and A. M. Redzuan*

4338-4348

Faculty of Pharmacy, Universiti Kebangsaan Malaysia, Jalan Raja Muda

Abdul Aziz, Kuala Lumpur, Malaysia

DOI:10.13040/IJPSR.0975-8232.11(9).4338-48

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)

28. A STRATEGY TO TREAT THE BREAST CANCER THROUGH INHIBITING THE OVER EXPRESSION OF PROTEIN ESTROGEN VIA SCHIFF BASE FUSED COUMARIN: AN IN-SILICO BASED SYNTHETIC APPROACH 940 394 0

Coumarin and its analogs have a wide range of attention in the treatment of hormone-dependent breast cancer by blocking the formation of estrogen through the inhibition of estrogen receptor. However, the Schiff bases are an important class of compounds with structural similarities of natural biological substances and also due to their presence of imine (-N=CH-), which have an impact on a biologica...

S. Jubie, T. Prabha*, S. Palanisamy, S. Latha and S. Ayyampurumal

4349-4358

Nandha College of Pharmacy, Erode, Tamil Nadu, India

DOI:10.13040/IJPSR.0975-8232.11(9).4349-58

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)

29. SUSTAINED RELEASE MULTI-PARTICULATES FORMULATION OF STEREO-SELECTIVE MOLECULE OF KETOPROFEN BY FLUID BED PROCESSOR 1039 419 0

The aim is to prepare sustained release multi-particulates dosage form of Dexketoprofen trometamol, which is the active isomer of ketoprofen. Utilization of active moiety with minimum drug dose and administration frequency sustained-release multi-particulates dosage form is explored. Sustained release pellets of the dexketoprofen trometamol were developed by the fluidized bed technology, in which ...

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4359-4369

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DOI:10.13040/IJPSR.0975-8232.11(9).4359-69

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)

30. ANTICHOLINESTERASE ACTIVITY OF PLANT EXTRACTS OF SMILAX ZEYLANICA AND SMILAX CHINA 6951 414 3

Alzheimer's disease is the most common neurodegenerative disease, which initially causes oxidative stresses and leads to neuronal death. It characterized by notable memory loss, cognitive impairment, and personality disorders accompanied by diffuse structural abnormalities in the brain of the aged population. The present work focused on anticholinesterase inhibiting activity Smilax zeylanica and...

A. Yakeshwaran*, V. V. Venkatachalam, B. Sabariseethil and V. K.

4370-4374

Kalaichelvan

Department of Pharmacy, FEAT, Annamalai University, Annamalai Nagar,

Chidambaram, Tamil Nadu, India

DOI:10.13040/IJPSR.0975-8232.11(9).4370-74

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)

31. FORMULATION AND PHYSICAL EVALUATION OF GLUCOCORTICOID LOADED TEA TREE OIL NANOEMULSION: A SUMMARIZED TECHNICAL NOTE 1011 451 0

Clobetasol propionate (CP) has anti-inflammatory, immunomodulatory, and anti-proliferative activity. The current work aimed to prepare and evaluate the nanoemulsions of CP loaded tea tree oil (TTO) would be stable nanoemulsion. Clinical use of CP is restricted to some extent due to its poor permeability across the skin. So, to increase its permeation across the skin, microemulsion based formulatio...

M. S. Alam ¹, M. S. Ansari, R. Sardewat and P. Sharma

4375-4387

School of Pharmacy, OPJS University, Churu, Rajasthan, India

DOI:10.13040/IJPSR.0975-8232.11(9).4375-87

Abstract

HTML Full Text

PDF

Citation

32. QSAR STUDIES, SYNTHESIS AND BIOLOGICAL EVALUATION OF PYRAZOLE DERIVATIVES CONTAINING THIOUREA AS TYROSINE KINASE INHIBITORS: AN APPROACH TO DESIGN ANTICANCER AGENTS

1141

402

0

A series of pyrazole derivatives designing for potential EGFR kinase inhibitors have been discovered. Some of them exhibited significant EGFR inhibitory activity. Compound 3-(4-Amino-phenyl)-5-(3-nitro-phenyl)-4, 5-dihydro-pyrazole-1-carbothioic acid amide (AP-2) displayed the most potent EGFR inhibitory activity. The QSAR analysis of a set of these compounds tested for growth inhibitory activity ...

A. Singh ¹ and P. K. Singour

4388-4394

Computational & Synthetic Chemistry Division, Department of Pharmaceutical Chemistry, VVU Faculty of Pharmacy, Bhopal, Madhya Pradesh, India

DOI:10.13040/IJPSR.0975-8232.11(9).4388-94

Abstract

HTML Full Text

PDF

Citation

33. PHYSICOCHEMICAL STUDY AND DEVELOPMENT OF SOPs OF A POLYHERBAL UNANI FORMULATION: SAFÜF-I MU'ALLIF

767

359

0

In the Unani system of medicine, different dosage forms of the drug are used; out of them powder dosage form is known as Safüf, which is an important dosage form and has been used frequently since long. There are many Unani preparations used in the form of Safüf to treat various diseases. Safüf -I Mu'allif (SM) is a polyherbal Unani formulation that is known to be used as Spermatogenic agen...

A. Alam ¹, J. I. Siddiqui and M. H. Kazmi

4395-4402

Department of Jinnu Adva (Pharmacology), Central Research Institute of Unani Medicine, Hyderabad, Telangana, India

DOI:10.13040/IJPSR.0975-8232.11(9).4395-02

Abstract

HTML Full Text

PDF

Citation

34. ISOLATION OF CADMIUM DEGRADING MICROORGANISMS FROM ELECTROPLATING, STEEL AND BATTERY INDUSTRY

960

379

0

Increase in industrialization has raised the levels of heavy metal pollution in the country. In order to combat with this problem, many strategies were developed till date, and among them, the use of microorganisms is the most successful technique. The present study was undertaken for isolation, identification, and characterization of heavy metal (Cd) tolerant bacteria from industrial effluents of...

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4403-4410

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DOI:10.13040/IJPSR.0975-8232.11(9).4403-10

Abstract

HTML Full Text

PDF

Citation

35. DEVELOPMENT AND VALIDATION OF RP-HPLC METHOD FOR ESTIMATION OF FLUTICASONE PROPIONATE AND MUIPIROCIN IN A COMBINED TOPICAL DOSAGE FORM

1567

509

0

The objective of the present study was to develop and validate a precise and accurate reversed-phase high-performance liquid chromatography for simultaneous estimation of for Fluticasone Propionate (FUP) and Mupirocin (MUP) in combined topical dosage form as per ICH guidelines. Chromatographic separation was achieved using HPLC Shimadzu, Japan, with column synchronis C18 (250 × 4.6 mm, 5 µm). Th...

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4411-4419

Ranil Institute of Pharmacy, Limda, Waghodiya, Vadodara, Gujarat, India

DOI:10.13040/IJPSR.0975-8232.11(9).4411-19

Abstract

HTML Full Text

PDF

Citation

- Abstract HTML Full Text PDF Citation
-
36. EFFECT OF CHROMIUM ON IN-VITRO GROWTH AND ANTIOXIDANT POTENTIAL OF DIANTHUS CARYOPHYLLUS L. 703 313 0
- Catalase, guaiacol peroxidase and polyphenol oxidase are antioxidant enzymes that are important in the metabolism of reactive oxygen species and can be induced by environmental stresses including chromium (Cr), heavy metal toxic to living organisms. In-vitro regenerated shoots of carnation (*Dianthus caryophyllus* L.) were exposed to K₂Cr₂O₇, and the activities of these antioxidant enzymes were anal...
- S. Purdhi ¹, S. Gupta and R. Jain ² 4420-4425
 Department of Botany, The O.S. University, Jaipur, Rajasthan, India
 DOI:10.13040/IJPSR.0975-8232.111014420-25
- Abstract HTML Full Text PDF Citation
-
37. STRUCTURE ELUCIDATION OF OXIDATIVE DEGRADATION PRODUCT OF DROSPIRENONE 853 439 0
- Stressed degradation study of Drospirenone in H₂O₂ and characterization of degradants by IR, NMR, LC-MS was done. Stressed degradation study of Drospirenone in H₂O₂ and characterization of degradants by IR, NMR, and LC-MS was done. To evaluate the stability of Drospirenone under stress conditions, it was subjected to oxidative degradation, according to ICH guideline Q1A (R2). The analysis was carr...
- S. V. Sutar ¹, V. C. Yelgar and S. S. Paul ² 4426-4432
 Ashokrao Mane College of Pharmacy, Path - Yalgan, Maharashtra, India
 DOI:10.13040/IJPSR.0975-8232.111014426-32
- Abstract HTML Full Text PDF Citation
-
38. ETHNOBOTANICAL SURVEY OF MEDICINAL PLANTS USED FOR DISINFECTION OF PREMISES AND SURFACES IN THE FEZ-MEKNES CITIES (CENTRE OF MOROCCO) 984 409 0
- The irrational and repetitive use of synthetic chemical disinfectants can contribute to the emergence of resistant strains and represent a risk to health and the environment. The aim of this ethnobotanical survey, a first innovative study, is exploring for plants with disinfecting power. An ethnobotanical study was conducted among herbalists in Fez and Meknes cities located in the center of Morocc...
- S. Jaouhar, K. Bekki ¹, J. E. Dialli ¹, J. Bouaid and A. E. Dialli Lalami ² 4433-4441
 Laboratory of Microbial Biotechnology, Faculty of Science and Technology,
 Sidi Mohammed Ben Abdellah University, Fez, Morocco
 DOI:10.13040/IJPSR.0975-8232.111014433-41
- Abstract HTML Full Text PDF Citation
-
39. EFFECTS OF ALLIUM SATIVUM ON BODY WEIGHT AND BIOCHEMICAL PARAMETERS IN HEALTHY RATS 724 329 1
- This case-control study had undertaken to evaluate effect of *Allium sativum* in normal rats. In this study ethanol extract of *Allium sativum* had macerated with aqueous gum acacia (2%, w/v) suspension and fed orally (500 mg/kg b w p. o.) to male adult normal rats of charles foster strain for 15 days. Results of this study showing that alcoholic extracts caused no any significant reduction in blood g...
- S. Bhatt, K. Malik and V. Kumar ¹ 4442-4448
 Department of Biochemistry, Shri Ram Murti Smarak Institute of Medical
 Sciences, Bareilly, Uttar Pradesh, India
 DOI:10.13040/IJPSR.0975-8232.111014442-48
- Abstract HTML Full Text PDF Citation
-
40. PHYTO-PHARMACOGNOSTICAL EVALUATION AND HPTLC FINGER-PRINTING PROFILE OF LEAVES OF SAPTAPARNA [ALSTONIA SCHOLARIS (L.) R. BR.] 969 415 2
- Objective: We report the phyto-pharmacognostic evaluation and HPTLC finger-printing profile of the methanolic extract of *Saptaparṇa* [*Alstonia scholaris* (L.) R. Br.] leaves – unaffected and gall-affected, collected in January 2019. Materials and Methods: Physicochemical parameters and phytochemical screening were done by standard procedures. HPTLC finger-printing profile of the methanolic extra...
- M. Das ¹, R. Bollaidu, A. Banerji and J. Hasra ² 4449-4457
 Department of Chemistry, Central Ayurveda Research Institute for Drug

Development, Kolkata, West Bengal, India

DOI:10.13040/IJPSR.0975-8232.11(9).4419-57

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)**41. PHYTOCHEMICAL SCREENING AND EVALUATION OF ANTI-DIARRHEAL POTENTIALITY OF PLUMERIA ALBA LINN. LEAVES**

841

377

[2](#)

Plumeria alba Linn. belonging to the family Apocynaceae (Dogbane family) is the flowering plant. P. alba is used as a purgative, rubefacient in rheumatism, asthma, piles, gonorrhoea, blood disorders and tumors, mentioned in the traditional system of medicine. The present study was carried out to establish the pharmacognostic studies, physicochemical parameters along with a preliminary phytochemical...

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4458-4462

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Greater Noida, Uttar Pradesh, India

DOI:10.13040/IJPSR.0975-8232.11(9).4458-62

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)**42. DEVELOPMENT AND EVALUATION OF PEPTIDE LOADED MUCOADHESIVE MICROSPHERES: IN AN EFFORT TO IMPROVE NASAL BIOAVAILABILITY OF PEPTIDE**

699

322

[0](#)

The nasal drug delivery system has been a promising route for delivery of proteins and peptides as it can avoid degradation in the gastrointestinal tract and metabolism by liver enzymes. However, due to the rapid mucociliary clearance, the bioavailability of proteins and peptides is still low. Hence, mucoadhesive microspheres may prolong the residence time of peptide drugs in nasal cavity and impr...

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4463-4469

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India

DOI:10.13040/IJPSR.0975-8232.11(9).4463-69

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)**43. ANTI-DIABETIC AND ANTI-OBESITY EFFECT OF FUNCTIONALLY ACTIVE PROTEINS OBTAINED FROM SEVEN EDIBLE INSECTS**

897

486

[3](#)

The bioactive peptides derived from food have increased consideration for their function in averting numerous chronic diseases, comprising, diabetes and obesity. Edible insects are the feasible composition of bioactive peptides owing to their high protein content and viable production. The present study was aimed to evaluate the antidiabetic and anti-obesity effects of seven edible insects' prot...

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4470-4478

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Women, Namakkal, Tamil Nadu, India

DOI:10.13040/IJPSR.0975-8232.11(9).4470-78

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)**44. SYNTHESIS, CHARACTERIZATION AND PHARMACOLOGICAL EVALUATION OF SOME ARYL PIPERAZINE COMPOUNDS**

1548

417

[0](#)

In this planned research work, aryl piperazine derivatives will be synthesized because aryl piperazine currently the most important constructive block in drug discovery with positive pharmacological evaluation. A series N-(4-(benzo[d]thiazol-2-yl)phenyl)-2-[4-(aryl-substituted) piperazines-1-yl]acetamide, N-(4-(benzo[d]oxazol-2-yl)phenyl)-2-[4-(arylsubstituted)piperazines-1-yl]acetamide and Synt...

D. G. Bari¹, K. Saravanan and K. Ahmad

4479-4486

Bhagwant University, Ajeer, Rajasthan, India

DOI:10.13040/IJPSR.0975-8232.11(9).4479-86

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)**45. SPECTROPHOTOMETRIC DETERMINATION OF DRUGS & PHARMACEUTICALS USING N-BROMOSUCCINIMIDE AND RHODAMINE-B COUPLE**

1034

403

[0](#)

Simple, sensitive, and accurate spectrophotometry method one each for estimation of five drugs viz., chloroquine phosphate (CHP), granisetron hydrochloride (GRA), rizatriptan benzoate (RIZ), zoledronic acid (ZOL) and zolmitriptan (ZOT), have been developed. The method depends upon oxidation of each drug by excess N-Bromo succinimide (NS), and subsequent determination of UN reacted NBS by Rhodami...

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4487-4494

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DOI:10.13040/ijpsr.0975-8232.11(9).4487-94

[Abstract](#)

[HTML Full Text](#)

[PDF](#)

[Citation](#)

46. RP-HPLC METHOD QUANTITATIVE ESTIMATION OF TAPENTADOL HYDROCHLORIDE AND ITS TABLETS

964

349

0

The objective was to develop and validate an easy, economical, fast, reliable, reproducible, precise and accurate reversed-phase high-performance liquid chromatography (RP-HPLC) method for the estimation of tapentadol hydrochloride (TAP, a mu opioid-receptor agonist, and noradrenaline reuptake inhibitor) in the bulk and pharmaceutical dosage form. The chromatographic separation was achieved by u...

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4495-4500

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Engineering, Indian Institute of Science, Bangalore, Karnataka, India

DOI:10.13040/ijpsr.0975-8232.11(9).4495-00

[Abstract](#)

[HTML Full Text](#)

[PDF](#)

[Citation](#)

47. IN-VITRO ANTI-INFLAMMATORY ACTIVITY, ACUTE TOXICITY TO ZEBRAFISH EMBRYOS AND NUTRITIONAL ANALYSIS OF BOHADSCHIA VITIENSIS WATER EXTRACT

903

361

0

Anti-inflammatory activity and the toxicity of Bohadschia vitiensis water extract were investigated by in-vitro models to evaluate the consumption of the extract by the local community to reduce arthritic-related pain. Specimens of B. vitiensis were collected from Mannar, Sri Lanka, and the water extract (WE) was prepared by removing visceral organs and incubating diced samples in distilled water,...

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4501-4508

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Nugegoda, Sri Lanka

DOI:10.13040/ijpsr.0975-8232.11(9).4501-08

[Abstract](#)

[HTML Full Text](#)

[PDF](#)

[Citation](#)

48. EFFECT OF OLANZAPINE ON HYPERTHERMIA IN SEROTONIN SYNDROME MODEL

886

352

0

The serotonin syndrome is a life-threatening adverse drug reaction caused by a significant increase in the concentration of 5-hydroxytryptamine (serotonin) in the central nervous system. The aim of this study was to establish the effects of olanzapine, an antipsychotic drug, on the hyperthermic response in rat experimental serotonin syndrome. In this study, we used an animal model of the serotonin...

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4509-4512

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University "Zdrave" Sofia, Bulgaria

DOI:10.13040/ijpsr.0975-8232.11(9).4509-12

[Abstract](#)

[HTML Full Text](#)

[PDF](#)

[Citation](#)

49. SYNTHESIS, SPECTRAL ELUCIDATION, ANTIBACTERIAL, ANTIOXIDANT AND DNA STUDIES OF ONNO TETRADENTATE SCHIFF BASE METAL(II) COMPLEXES DERIVED FROM 2-AMINOPHENOL DERIVATIVES

900

435

0

The new asymmetrical tetradentate (ONNO) Schiff base (L 4-chloro- 2- ((E)- (4- ((E)-((2-hydroxy-5-nitrophenyl)imino)methyl)benzylidene) amino)phenol was prepared by the condensation of terephthalaldehyde with 2-amino 4-chlorophenol and 2-amino 4-nitrophenol in 1:1:1 molar ratio in methanol. The homo binuclear metal(II) complexes were synthesized in ligand to metal ratio 2:2 from the template meth...

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4513-4523

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Nadu, India

[Abstract](#)

[HTML Full Text](#)

[PDF](#)

[Citation](#)

DOI:10.13040/IJPSR.0975-8232.11(9).4513-23

[Abstract](#)
[HTML Full Text](#)
[PDF](#)
[Citation](#)

50. PLANT MEDIATED GREEN SYNTHESIS OF SILVER NANOPARTICLES USING RUMEX OBTUSIFOLIUS LEAF EXTRACT AND THEIR ANTIBACTERIAL ACTIVITY 747 376 0

Rumex obtusifolius, belonging to the Polygonaceae family, commonly known as 'broad-leaf-dock' is one of the most important medicinal plants. It is common wayside weeds and uses as an antidote to nettle, depurative, astringent, laxative, and tonic and in the treatment of sores, blisters, jaundice, burns, cancer, and tumors. In this study, we design to synthesize silver nanoparticles from silver...

M. C. Purohit, M. Singh *, G. Kumar and N. Singh 4524-4529

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DOI:10.13040/IJPSR.0975-8232.11(9).4524-29

[Abstract](#)
[HTML Full Text](#)
[PDF](#)
[Citation](#)

51. DEVELOPMENT OF RP-HPLC METHOD FOR THE ESTIMATION OF ACOTIAMIDE HYDROCHLORIDE HYDRATE USING QbD APPROACH 904 385 0

The current studies details QbD enable the development of a simple, rapid, and cost-effective reverse phase high performance liquid chromatographic method for estimation of Acotiamide hydrochloride hydrate. The simple analytical RP-HPLC method was developed using Box-Behnken Design (BBD). In the present work, three independent factors were used, such as org phase (A), aqueous phase (B), and flow ...

S. S. Gawande, A. T. Tamike *, K. R. Gupta and M. J. Umekar 4530-4539

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Pharmacy, Kamptee, Nagpur, Maharashtra, India.

DOI:10.13040/IJPSR.0975-8232.11(9).4530-39

[Abstract](#)
[HTML Full Text](#)
[PDF](#)
[Citation](#)

52. PHYTONUTRIENTS AND ANTIMICROBIAL ASSAY OF CAT'S TAIL 690 355 0

Herbal medicine plays an important role in rural areas, and various locally produced drugs are still being used as household remedies for different ailments. *Acalypha hispida* (Euphorbiaceae) is a plant popularly used in pharmaceutical used and as a commercial product. Hence, the need to explore the potential of this plant, especially in the area of traditional medicine and pharmaceutical industrie...

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DOI:10.13040/IJPSR.0975-8232.11(9).4540-49

[Abstract](#)
[HTML Full Text](#)
[PDF](#)
[Citation](#)

53. IN-VIVO AND STABILITY STUDIES OF DRY POWDER INSUFFLATION CONTAINING TERBUTALINE SULPHATE AND ITRACONAZOLE NANOPARTICLES FOR THE TREATMENT OF ASTHMA 702 337 0

The present research was envisaged on the development of dry powder to treat asthma. Terbutaline sulphate (a bronchodilator) and Itraconazole (an antifungal) were used in the present study for bronchodilation and allergy to *Aspergillus fumigatus* (fungi) using lactose and trehalose as excipients. Dry powder insufflations were prepared by physical mixing (milling) and spray drying, out of which spr...

V. Penabaka, B. Kumar * and N. B. L. Prasad 4550-4557

Department of Pharmaceutics, Ratnam Institute of Pharmacy,

Bdhanapukur, Madhavur, SPSR Nellore, Andhra Pradesh, India.

DOI:10.13040/IJPSR.0975-8232.11(9).4550-57

[Abstract](#)
[HTML Full Text](#)
[PDF](#)
[Citation](#)

54. BIOSYNTHESIS, CHARACTERIZATION AND BIOLOGICAL STUDIES OF SILVER NANOPARTICLES USING METHANOLIC EXTRACT OF BULB OF ZEPHYRANTHES CITRINA 975 392 0

In the present study, an eco-friendly, cost-efficient, rapid and simple approach was applied to the synthesis of silver nanoparticles by using a methanolic extract of bulb of *Zephyranthes citrina*. The metal salt was reduced to ions by metabolites present in bulb extracts. The plant extracts acts both as a reducing agent as

well as a capping agent. The synthesized silver nanoparticles were characte...

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4558-4566

Department of Chemistry, Kandaswami Kandar's College, Namakkal, Tamil Nadu, India.

DOI:10.13040/ijpsr.0975-8232.111014558-66

[Abstract](#) [HTML Full Text](#) [PDF](#) [Citation](#)

55. A VALIDATED LCMS METHOD FOR THE ANALYSIS OF ISOPROTERENOL – A β ADRENORECEPTOR AGONIST IN SPIKED HUMAN PLASMA

1378

366

0

A simple, sensitive, and rapid Liquid Chromatography-Mass Spectroscopy method was developed and validated for the quantification of Isoproterenol in human plasma using Dobutamine as an internal standard. The method utilized simple liquid-liquid extraction using a mixture of diethyl ether and dichloromethane for the sample preparation involved prior to LCMS analysis. The analytes were chromatograph...

V. S. S. Gaddala *, R. S. K. Dachuri and E. D. Tella

4567-4574

Department of Chemistry, SRR & CVR Government Degree College (A),

Wijayawada, Andhra Pradesh, India.

DOI:10.13040/ijpsr.0975-8232.111014567-74

[Abstract](#) [HTML Full Text](#) [PDF](#) [Citation](#)

56. EXPLORATION OF THE UNIQUE FUNGAL ASSOCIATION AND PROTEIN PROFILE OF BODA FROM BASTAR, CHHATTISGARH, INDIA

1553

517

0

Bastar is endowed with a unique blend of traditional knowledge and rich floral diversity. The region is known as the island of Shorea robusta, which is a key source for white and black truffle called Boda. It is also known as the black gold of the sal forest. It sets underground with the onset of early monsoon and is an edible mushroom with high protein, vitamin, and fiber with the low calorific v...

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4575-4584

School of Studies in Biotechnology, Bastar Vishwavidyalaya, Dharampura,

Jagdalpur, Chhattisgarh, India.

DOI:10.13040/ijpsr.0975-8232.111014575-84

[Abstract](#) [HTML Full Text](#) [PDF](#) [Citation](#)

57. DEVELOPMENT AND EVALUATION OF TRANSDERMAL DRUG DELIVERY OF SALBUTAMOL SULPHATE VIA ETHOSOMES

918

410

0

Asthma is a chronic disease; there is a need for a drug delivery system that maintains adequate therapeutic concentrations for a longer duration of action to improve better clinical efficacy. Salbutamol sulphate (SS) is a widely prescribed drug to treat asthma though it has short plasma half-life and undergoes extensive first-pass metabolism. Thus, it necessitates frequent administration by oral r...

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4585-4597

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Karnataka, India.

DOI:10.13040/ijpsr.0975-8232.111014585-97

[Abstract](#) [HTML Full Text](#) [PDF](#) [Citation](#)

58. IDENTIFICATION OF BIOACTIVE COMPOUNDS FROM RHIZOPHORA MUCRONATA METHANOLIC LEAF EXTRACT BY GC-MS ANALYSIS

782

371

0

Herbal medicines play an important role in cancer prevention. Mangroves have been used worldwide due to the presence of various bioactive metabolites in it. The specific medicinal properties of Rhizophora mucronata have been an interest in preventing breast cancer. Mangroves Rhizophora mucronata belongs to family Rhizophoraceae. The leaf extract reveals various roles in folk remedies to treat vari...

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4598-4602

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DOI:10.13040/ijpsr.0975-8232.111014598-02

[Abstract](#) [HTML Full Text](#) [PDF](#) [Citation](#)

[Abstract](#) [HTML Full Text](#) [PDF](#) [Citation](#)

59. **HYDROPHILIC AND HYDROPHOBIC MATRIX SYSTEM ENGINEERED DEVELOPMENT OF EXTENDED-RELEASE TABLETS OF OXYBUTYNIN CHLORIDE** 1056 525 0

The present aim study is the formulation development and evaluation of extended-release matrix tablets of oxybutynin chloride by using hydrophilic and hydrophobic matrix systems. The pilot-scale batches of nine formulations were prepared using Eudragit RSPO, Eudragit RLPO, Carbopol 971NF, ethylcellulose individually, and in the combination of above polymer and Avicel PH102 by adopting direct compr...

P. S. Gangane ¹, S. V. Phesia, D. K. Mahapatra and N. M. Mahajan 4603-4611

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Nagpur, Maharashtra, India.

DOI:10.13040/IJPSR.0975-8232.11(9)4603-11

[Abstract](#) [HTML Full Text](#) [PDF](#) [Citation](#)

60. **EFFECT OF ABIOTIC STRESSES ON THE MARKER CONTENT AND THE ACTIVITY OF CENTELLA ASIATICA** 777 391 0

Centella asiatica (CA; family Apiaceae) is extensively used in traditional medicine. A regular supply of this plant is required by the herbal drug industry. Hence, the cultivation of this plant is required. The emphasis of the available cultivation practices is on biomass yield. The activity of the plant, however, depends on the amount of bioactive constituents. The production of these secondary m...

Hurnal, P. Singh, G. Bansal and R. Shri ¹ 4612-4621

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University, Patiala, Punjab, India.

DOI:10.13040/IJPSR.0975-8232.11(9)4612-21

[Abstract](#) [HTML Full Text](#) [PDF](#) [Citation](#)

61. **DEVELOPMENT AND VALIDATION OF A CHROMATOGRAPHIC ASSAY METHOD FOR THE DETERMINATION OF LULICONAZOLE IN CREAMS** 2121 718 0

A simple and rapid reverse-phase high-performance liquid chromatographic technique was developed and validated for the determination of Luliconazole in the presence of its excipients. Chromatographic elution was performed on a binary gradient HPLC equipped with PDA detector using a Luna-5 μ C8(2) 100 Å column (250 × 4.6 mm, 5 μ m) with orthophosphoric acid (0.1%) and methanol (20:80% w/v) as mob...

S. Gummali ¹ and M. Kummaji 4622-4628

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DOI:10.13040/IJPSR.0975-8232.11(9)4622-28

[Abstract](#) [HTML Full Text](#) [PDF](#) [Citation](#)

62. **UTILITY AND EFFECTIVENESS OF GENEXPERT OVER CONVENTIONAL METHODS FOR DIAGNOSIS OF PULMONARY TUBERCULOSIS** 905 364 0

Background: Tuberculosis (TB) is a global health burden and can cause potential infection in any system of the body. Pulmonary tuberculosis (PTB) is most common presentation, but the diagnosis of TB remains elusive because of none of biochemical or serological test is invalid. During the development of END TB strategy, the gene expert (CBNAAT) test was first endorsed by WHO. Materials and Methods:...

V. Gaur, A. K. Singh ¹, A. Kumar and A. K. Mehra 4629-4636

Department of Microbiology, Baba Raghav Das Medical College, Gorakhpur,

Uttar Pradesh, India.

DOI:10.13040/IJPSR.0975-8232.11(9)4629-36

[Abstract](#) [HTML Full Text](#) [PDF](#) [Citation](#)

63. **PREFORMULATION, FORMULATION DEVELOPMENT AND DRUG RELEASE STUDIES OF DIPYRIDAMOLE FLOATING MICROBALLOONS** 1001 384 0

For the drugs possessing stomach and upper intestine as the absorption window, it has become high practical importance to improve their gastric residence time. The in vitro performance of the drug delivery being highly variable is ascertaining as gastric emptying is one of the complex mechanisms. Intense

researches are being carried out for the development of multiparticulate systems, which are of...

S. R. Krishna ^{*}, A. Ramu and S. Vidyadhara

4637-4647

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Nagarjuna University, Guntur, Andhra Pradesh, India

DOI:10.13040/IJPSR.0975-8232.11101.4637-47

[Abstract](#) [HTML Full Text](#) [PDF](#) [Citation](#)

64. A COMPARATIVE STUDY ON PROXIMATE AND MINERAL COMPOSITION OF UNPROCESSED AND PROCESSED UNDERUTILIZED JERUSALEM ARTICHOKE TUBER FLOUR

758

389

0

Jerusalem artichoke is one of the underutilized tuber crops distributed worldwide in temperate areas. It is considered healthy and functional food due to its chemical composition as it contains proteins, mono or poly-unsaturated fatty acids, dietary fibers, vitamins, and minerals. In this present research work, the effect of processing on the proximate and mineral composition of Jerusalem artichok...

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4648-4654

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DOI:10.13040/IJPSR.0975-8232.11101.4648-54

[Abstract](#) [HTML Full Text](#) [PDF](#) [Citation](#)

65. DEVELOPMENT, CHARACTERIZATION AND OPTIMIZATION OF KUTKI PHOSPHOLIPID COMPLEX USING CENTRAL COMPOSITE DESIGN AND RESPONSE SURFACE METHODOLOGY

1030

485

0

Kutki (*Picrorrhiza kurroa*) is a medicinal herb with remarkable pharmacological properties. However, poor solubility of the active principles limits its medicinal value. This study sought to prepare kutki phospholipid complex in phospholipids such as phosphatidyl choline in order to improve its solubility and permeability. Kutki phospholipid complex (phytosome) was prepared by solvent evaporation m...

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4655-4666

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DOI:10.13040/IJPSR.0975-8232.11101.4655-66

[Abstract](#) [HTML Full Text](#) [PDF](#) [Citation](#)

66. DEVELOPMENT, OPTIMISATION, AND CHARACTERISATION OF SNEDDS OF ANTI-LIPASE INHIBITOR

707

405

0

Background: Self-Nanoemulsifying Drug Delivery System (SNEDDS) has been employed extensively by the formulation of scientists to tackle the low solubility issues of various drugs and lift the bioavailability profile. But the potential of SNEDDS is not limited to augment the dissolution profile only. Objective: The objective of the study was to develop, optimization, and characterization of SNEDDS ...

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Haryana, India

DOI:10.13040/IJPSR.0975-8232.11101.4667-75

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67. FORMULATION AND EVALUATION OF BILAYER FLOATING TABLETS OF ATORVASTATIN AND CAPTOPRIL

1101

467

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The aim of the present research work was to develop a bilayer floating dosage form of immediate-release Atorvastatin (ATR) and sustained release Captopril (CPT) in matrix form for the treatment of hyperlipidaemia and hypertension to reduce multiple dosing frequencies and enhance patient compliance. ATR belongs to the BCS Class II category having poor aqueous solubility, which was enhanced by using...

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[Abstract](#) [HTML Full Text](#) [PDF](#) [Citation](#)

68. DEVELOPMENT AND CHARACTERIZATION OF CARBOXYMETHYLCELLULOSE BASED EMULGEL FOR DRY EYE

975

414

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SYNDROME

Dry Eye Syndrome is a common disorder of the normal tear film that results from one of the following: decreased tear production, excessive tear evaporation, an abnormality in the production of mucus or lipids normally found in the tear layer. Carboxymethylcellulose (CMC) is a highly viscous derivative of cellulose that is used as an eye lubricant. CMC moistens the eye to prevent or relieve dry eye...

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- Abstract
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69. **MOLECULAR DOCKING STUDY OF ACYCLOVIR AND ITS DERIVATIVES AS POTENT INHIBITORS IN NOVEL COVID-19** 6709 2610 3

Novel coronavirus (nCovid-19) is a recent emerging, dangerous pathogen that has shaken the whole world. Present therapeutic strategies to deals with this infectious disease are only supportive. The discovery of a new drug within a short period of time is a great task. Structure predictions of several proteins associated with SARS-CoV-2, the virus that causes COVID-19, was made possible by Genomics...

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- Abstract
- HTML Full Text
- PDF
- Citation

70. **ASSOCIATION BETWEEN HYPERURICEMIA, SERUM IRON LEVEL AND POSSIBILITY OF GOUT AMONG SAUDI PATIENTS: A RETROSPECTIVE STUDY** 804 382 2

The present study has been undertaken to evaluate the association between serum uric acid levels as a marker of iron overload in Saudi people. A retrospective cohort study was carried out at King Fahad Medical City in the Riyadh-central region of the Kingdom of Saudi Arabia for four months from 1st November 2018 to the end of February 2019 on the random sample of 117 medical files for Saudi patien...

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THE EFFECT OF KEREHAU LEAF EXTRACT (*CALLICARPA LONGIFOLIA* LAMK.) ON LIPID RATIOS AND AORTA HISTOPATHOLOGY OF MALE RATS OF WISTAR STRAIN

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Keywords:

Kerehau leaves,
Callicarpa longifolia Lamk.,
Lipid ratios, Foam cells, Aorta,
Histopathology

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ABSTRACT: Ethanol extract of kerehau leaves is known to have anti-inflammatory and antioxidant activities with the potential to prevent atherosclerosis. This study aims to determine the ability of kerehau ethanol extract in reducing the lipid levels, the lipid ratios, and the number of foam cells in the blood vessel walls. This study employed *in-vivo* and *ex-vivo* experiments on male rats of Wistar strain induced with high-fat feed and 25% fructose for 45 days. The rats were divided into 6 groups (n=3), namely negative control (0.5% CMC-Na), positive control (induction), simvastatin (0.9 mg/kg bw), and 3 groups of test extracts with a dose of 75, 150, and 300 mg/kg bw, respectively. Administration of CMC-Na, simvastatin, and kerehau ethanol extract was carried out orally along with the inducer. The parameters measured were the levels of triglycerides, TC, and serum HDL at before and after 45 days of treatment. Rat aortic arches were taken for histopathological examination at the end of the study. The results showed that kerehau ethanol extract at a dose of 75 mg/kg bw was able to reduce the TC levels (63.63 ± 11.23), increase the HDL levels (30.47 ± 2.78), reduce the lipid ratios {(Cardiac Risk Ratio) (2.09 ± 0.18) and Atherogenic Coefficient (1.09 ± 0.18)}, and reduce the number of foam cells (16 ± 1.41). It can be concluded that the kerehau ethanol extract at a dose of 75 mg/kgbw has the ability to lower the lipid levels (TC), the lipid ratios, and the number of foam cells.

INTRODUCTION: Atherosclerosis is a chronic arterial disease characterized by fats and other substances gradually built up, creating atheroma and plaque, around the artery walls. In the event of plaque rupture, local thrombosis occurs, leading to partial or total occlusion of the affected arteries. Atherosclerosis is a major cause of vascular disease worldwide. The main clinical manifestations of atherosclerosis include ischemic heart disease, ischemic stroke, and peripheral artery disease¹.

Inflammation and oxidative stress have long been thought to be the key processes that encourage the initiation, development and rupture of atherosclerotic plaques. Oxidative modification of low-density lipoprotein (LDL) particles is hypothesized to be an important first step in the atherosclerotic process².

Statin therapy has been used as a foundation for the prevention of atherosclerosis and its complications for decades. However, although statin's ability to reduce LDL cholesterol has shown considerable success, cardiovascular disease remains the leading cause of death worldwide. Besides, statin therapy causes some side effects, ranging from mild myalgia, rhabdomyolysis, diabetes mellitus, to central nervous system complaints, preventing some patients to be unable to get optimal benefits

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from the therapy. This finding suggests that other treatments aside from statins are still required³.

Plant flavonoids with an anti-atherosclerotic activity have received substantial attention in research, and they have also shown to minimize the risk of atherosclerosis *in-vitro* and *in-vivo* in different animal models. Flavonoid compounds with their anti-inflammatory and anti-atherogenic properties have also decreased lipid levels. The development of flavonoid-based drugs is believed to have a significant effect on atherosclerosis and their related diseases⁴.

One plant that contains flavonoids with anti-inflammatory and antioxidant activities is kerehau (*Callicarpa longifolia* Lamk.). A number of studies revealed that the ethanol extract of kerehau leaves acted as anti-inflammatory and wound healing⁵ as well as a powerful antioxidant⁶. It is thus necessary to further investigate the activity of ethanol extract of kerehau leaves as anti-atherosclerosis. Therefore, this study was conducted to figure out the potential of ethanol extract of kerehau leaves as anti-atherosclerosis on Wistar rats induced with hyperlipidemia. This method was selected based on the fact that hyperlipidemia has been a widely recognized risk factor for atherosclerosis³.

MATERIALS AND METHODS:

Plant Material Collection: The plant parts used in this study were the leaves of kerehau (*Callicarpa longifolia* Lamk.) found in Muara Muntai of Kutai Kartanegara District in East Kalimantan, Indonesia. To ensure the correctness of the type of plant used, plant identification was carried out in the Laboratory of Plant Anatomy and Systematics, Faculty of Mathematics and Natural Sciences of Mulawarman University, Samarinda.

Preparation of Kerehau Leaf Ethanol Extract: As much as 3 kg of dried kerehau leaves (*Callicarpa longifolia* Lamk.) were extracted by the maceration method using 96% ethanol solvent (1:5) about three times, 24 h each. The liquid extract was then concentrated using a rotary evaporator at a temperature of 40-45 °C. The thick extract was suspended in 0.5% CMC-Na before use.

Induction Making: This study used induction of high-fat feed and 25% fructose drinking water in

order to produce a hyperlipidemic rat model. The high-fat diet consists of a mixture of standard feed (pig pellets), butter (Orchid butter), and quail egg yolks, with a ratio of 80:15:5. The fructose used was High Fructose Syrup (HFS) 55%, which was diluted with distilled water to 25% concentration⁷.

Test Animals: This study was conducted at the Veterinary Laboratory of Bandung School of Pharmacy, Bandung, Indonesia. The test animals used were 18 male rats of Wistar strain aged 2-3 months with weights of 150-200 g. The animals were adapted for 7 days, and they were given ad libitum access to food (standard feed) and water in a 12-hour light/12-hour dark cycle.

The procedure for the maintenance and use of the animals in this study was approved by the Research Ethics Commission of Padjajaran University in Bandung (Code of Ethics no. 72/UN6.KEP/EC/2018).

Test Animal Treatment: The test animals were divided into 6 groups randomly (n=3) as follows⁷:

- 1) (-) Control:** Group with standard feeding (15 g/day of pig pellets) and 0.5% of CMC-Na.
- 2) (+) Control:** Group with induction (15 g/day of high-fat feed and 25% fructose ad libitum) and 0.5% of CMC-Na.
- 3) Simvastatin:** Group with induction and simvastatin suspension at 0.9 mg/kg bw.
- 4) Kerehau Ethanol Extract 1:** Group with induction and suspension of ethanol extract of kerehau leaves at 75 mg/kg bw.
- 5) Kerehau Ethanol Extract 2:** Group with induction and suspension of ethanol extract of kerehau leaves at 150 mg/kg bw.
- 6) Kerehau Ethanol Extract 3:** Group with induction and suspension of ethanol extract of kerehau leaves at 300 mg/kg bw.

Induction was carried out for 45 days. On day 0 and day 46, we examined the levels of triglycerides (TG), total cholesterol (TC), and serum high-density lipoproteins (HDL) in the rats. Afterward, the aortic arches of two rats from each group were taken out.

The organs were stored in 10% Buffered Neutral Formalin (BNF) solution and made histological preparations with hematoxylin and eosin staining. The aortic histology preparations were observed and the number of foam cells in the tunica intima and tunica media per cross-section was calculated. The number of foam cells in all rats in each treatment group was summed and calculated on average. The levels of TG, TC, and HDL were used to calculate the lipid ratios, including Cardiac Risk Ratio, Atherogenic Index, and Atherogenic Coefficient with the following equations ⁸:

$$\text{Cardiac Risk Ratio} = \text{Total Cholesterol (mg/dL)} / \text{HDL (mg/dL)}$$

$$\text{Atherogenic Index} = \text{Log triglyceride (mg/dL)} / \text{HDL (mg/dL)}$$

$$\text{Atherogenic Coefficient} = \text{Total Cholesterol} - \text{HDL (mg/dL)} / \text{HDL (mg/dL)}$$

Data Analysis: To test differences in lipid levels and lipid ratios, a one-way ANOVA test was administered in each treatment group. The results of the analysis are significant if $p < 0.05$ at a 95% confidence level.

RESULTS AND DISCUSSION:

Activity of Kerehau Leaf Ethanol Extract on Lipid Levels: The activity of the ethanol extract of kerehau leaves on lipid levels was tested by measuring the lipid profiles of the rat serum samples before treatment (T0) and after 45 days of treatment (T46), which included TG, TC, and HDL levels **Table 1**.

TABLE 1: AVERAGES OF LIPID LEVELS ON T0 AND T46 PERIODS

Group	Average level (mg/dL) ± SD					
	Triglyceride		Total Cholesterol		HDL	
(-) Control	95.47±31.62	54.90±23.45*	68.80±15.20	62.37±4.74*	26.07±14.07	28.37±14.42*
(+) Control	64.73±19.24	218.03±94.98	88.63±53.43	95.20±15.56#	30.37±9.31	12.13±2.14#
Simvastatin	86.53±7.19	145.73±36.25	82.30±21.65	62.10±2.00*	27.20±2.78	36.53±13.93*
Ker. Eth. Extr.1	80.00±17.23	175.93±59.13	78.70±30.93	63.63±5.42*	27.87±4.18	30.47±2.78*
Ker. Eth. Extr.2	56.43±11.49	176.07±58.31	94.23±70.22	63.17±11.23*	31.53±17.81	30.07±1.00*
Ker. Eth. Extr.3	53.93±12.27	201.50±35.87	87.37±32.47	73.97±3.49*	29.83±5.28	36.43±1.99*

*Difference is significant when compared to the (+) control group ($p < 0.05$)

#Difference is significant when compared to the Simvastatin group ($p < 0.05$)

As seen in **Table 1**, the kerehau ethanol extract showed its activity against lipid profiles. The provision of fructose induction at 25% and high-fat diet aimed to obtain a hyperlipidemic rat model. The (+) control group, which was induced by 25% fructose and high-fat diet, increased the TG and TC levels while decreased the HDL levels. Based on the results of the LSD (Least Significant Different) test, there were significant differences ($p < 0.05$) between the lipid levels in the (+) control and (-) control groups after the induction phase for 45 days. This finding indicates that the induction of 25% fructose and high-fat feeding could produce a hyperlipidemic rat model. Several studies have shown that the administration of fructose induction and high-fat diets could raise the levels of TG and TC while declining the levels of HDL.

A study conducted by Zhao *et al.*, ⁹ using induction of 20% fructose drinking water for 28 days, found an increase in TG and TC levels and a significant decrease in HDL levels ($p < 0.01$). In addition, Rahmawati *et al.*'s ⁷ study using induction of

27.5% fructose drinking water and high-fat diet (80% standard feed, 15% butter, and 5% quail egg yolk) revealed that the treatment could increase the lipid ratios (comparison between LDL and HDL levels) and foam cell number in the vascular walls of the rat aortic arch. These findings suggested that high-fructose drinking water can be used as induction of hyperlipidemia.

High-fat feed consisting of butter and quail egg yolks help enhance lipid levels. Butter contains saturated fatty acids, which can increase TC and LDL cholesterol ¹⁰, while quail egg yolks have a higher TC and LDL cholesterol compared to chicken egg yolks ¹¹. Cholesterol and egg yolk diets raise the risk of cardiovascular events; therefore, patients with the risk of vascular diseases should avoid such diets ¹².

Triglycerides (TG): Hyper-triglycerides can be associated with two other lipid abnormalities, such as the formation of small dense LDL and HDL reduction ¹³. The kerehau ethanol extract activity

on the average TG levels of the rats is shown in **Table 1**. The average TG levels in each group increased except for the (-) control group. The simvastatin group and kerehau ethanol extract groups at all three test doses did not show any significant differences ($p>0.05$) with the (+) control group. This shows that simvastatin and all three test doses of kerehau ethanol extract have not been able to reduce TG levels. In these test groups, however, a significant rise in the TG levels was associated with the fructose induction, as it showed a dominant impact.

Simvastatin is a drug that has been successfully tested for its activity in declining the levels of TC and LDL¹⁴; however, clinically, the TG levels often remain high in some CHD patients when cholesterol is highly controlled by statins¹⁵. This is because statins are HMG-CoA reductase inhibitors (enzymatic rate inhibitors that play a role in the synthesis of cholesterol in the liver), whose main benefit is to lower cholesterol rather than triglycerides¹⁶.

Total Cholesterol (TC): The activity of ethanol extract of kerehau leaves on the average of TC of the rats are shown in **Table 1**. The average TC

levels in each group decreased except for the (+) control group. The TC levels in three kerehau ethanol extract groups were lower than those in the (+) control group, and these differences were statistically significant ($p<0.05$). It can be interpreted that kerehau ethanol extract at the three test doses can reduce the levels of TC.

High-Density Lipoprotein (HDL): HDL plays an important role in re-transporting cholesterol from peripheral tissues to the liver, making it has an antiatherogenic property. In addition, HDL particles have antioxidant, anti-inflammatory, antithrombotic, and antiapoptotic properties that contribute to inhibiting atherosclerosis¹⁷. The kerehau ethanol extract activity on the average HDL levels of the rats is shown in **Table 1**.

The average HDL levels in the (+) control group declined and showed significant differences ($p<0.05$) when compared to the other groups. The average HDL levels in the simvastatin, kerehau ethanol extract 1, and kerehau ethanol extract 3 groups revealed an increase, while the kerehau ethanol extract 2 group showed a small decrease in HDL levels.

TABLE 2: AVERAGES OF LIPID RATIOS ON T0 AND T46 PERIODS

Group	Average value \pm SD					
	Cardiac risk ratio		Atherogenic index		Atherogenic Coefficient	
	T0	T46	T0	T46	T0	T46
(-) Control	3.01 \pm 1.25	2.52 \pm 0.97*	0.09 \pm 0.03	0.07 \pm 0.02*	2.01 \pm 1.25	1.52 \pm 0.97*
(+) Control	3.58 \pm 3.39	8.15 \pm 2.62#	0.06 \pm 0.03	0.20 \pm 0.04*	2.58 \pm 3.39	7.15 \pm 2.62#
Simvastatin	3.10 \pm 1.05	1.87 \pm 0.69*	0.07 \pm 0.01	0.07 \pm 0.03*	2.10 \pm 1.05	0.87 \pm 0.69*
Ker. Eth. Extr.1	2.87 \pm 1.12	2.09 \pm 0.18*	0.07 \pm 0.01	0.07 \pm 0.01*	1.87 \pm 1.12	1.09 \pm 0.18*
Ker. Eth. Extr.2	2.95 \pm 1.14	2.09 \pm 0.30*	0.07 \pm 0.04	0.07 \pm 0.01*	1.95 \pm 1.14	1.09 \pm 0.30*
Ker. Eth. Extr.3	2.97 \pm 1.04	2.04 \pm 0.17*	0.06 \pm 0.01	0.06 \pm 0.00*	1.97 \pm 1.04	1.04 \pm 0.17*

*Difference is significant when compared to the (+) control group ($p<0.05$)

#Difference is significant when compared to the Simvastatin group ($p<0.05$)

Activity of Kerehau Leaf Ethanol Extract on Lipid Ratios: Lipid ratios are the combination of lipid parameters that reflect the proportion of atherogenic lipoproteins (lipoproteins that raise cardiovascular risk) and antiatherogenic lipoproteins (lipoproteins that reduce cardiovascular risk). Some lipid ratios proposed as the indicators of cardiovascular risk include cardiac risk ratio (CRR), atherogenic index (AI), and atherogenic coefficient (AC)⁸. Compared to a single lipid parameter, the lipid ratios are considered a better predictor of cardiovascular

disease¹⁸. The results of testing the activity of ethanol extract of kerehau leaves on the lipid ratios can be seen in **Table 2**.

Cardiac Risk Ratio (CRR): CRR is the ratio between TC and HDL (TC/HDL). CRR values of ≥ 3.5 are associated with a risk of cardiovascular disease¹⁹. **Table 2** depicts that the average CRR values in the simvastatin, kerehau ethanol extract 1, kerehau ethanol extract 2, and kerehau ethanol extract 3 groups were 1.87, 2.09, 2.09, and 2.04, respectively, indicating that there was no risk of

cardiovascular disease, whereas the (+) control group showed a risk for cardiovascular disease with an average CRR value of 8.15.

Atherogenic index (AI): AI is calculated as the ratio between the logarithm results of TG and HDL $\{(Log\ TG)/HDL\}$ levels. AI is a useful parameter for the diagnosis and prognosis of cardiovascular disease with a high predictive value²⁰. AI has been used by some practitioners as a significant predictor of atherosclerosis, and it has been suggested that AI values of -0.3 to 0.1 are associated with low cardiovascular risk, 0.1 to 0.24 with moderate cardiovascular risk, and above 0.24 with high cardiovascular risk²¹. The results of the study showed that the AI averages in the simvastatin, kerehau ethanol extract 1, and kerehau ethanol extract 2 groups were all 0.07, while only the kerehau ethanol extract 3 group was 0.06. These results were classified as low cardiovascular risk, whereas the (+) control group had a moderate cardiovascular risk with an average AI value of 0.20.

Atherogenic Coefficient (AC): AC is the ratio between non-HDL and HDL $\{(TC-HDL)/HDL\}$ cholesterol. The recommended AC value is <3.0 ²², and in this study, the average AC values in the

simvastatin, kerehau ethanol extract 1, kerehau ethanol extract 2, and kerehau ethanol extract 3 groups were 0.87, 1.09, 1.09, and 1.04, respectively, indicating that there was no risk of cardiovascular disease, whereas the (+) control group had a risk of cardiovascular disease with an average AC value of 7.15.

Activity of Kerehau Leaf Ethanol Extract on Aortic Histopathology: Testing the activity of ethanol extract of kerehau leaves on aortic histopathology was conducted by examining and calculating the number of foam cells in the aortic tunica intima and tunica media using a microscope at 400x magnification (ocular 10x, objective 40x). The test results can be seen in **Table 3**. This study found that the induction of 25% fructose and high-fat feed, comprising a combination of standard feed, butter, and quail egg yolks with a ratio of 80:15:5, were able to enhance the number of foam cells in the rat aortic tunica intima and tunica media. This result was in line with previous studies that reported that the administration of fructose and high-fat diets with similar composition could grow the number of foam cells in the tunica intima and tunica media of the rat aorta⁷. Microscopic images in each group can be seen in **Fig. 1**.

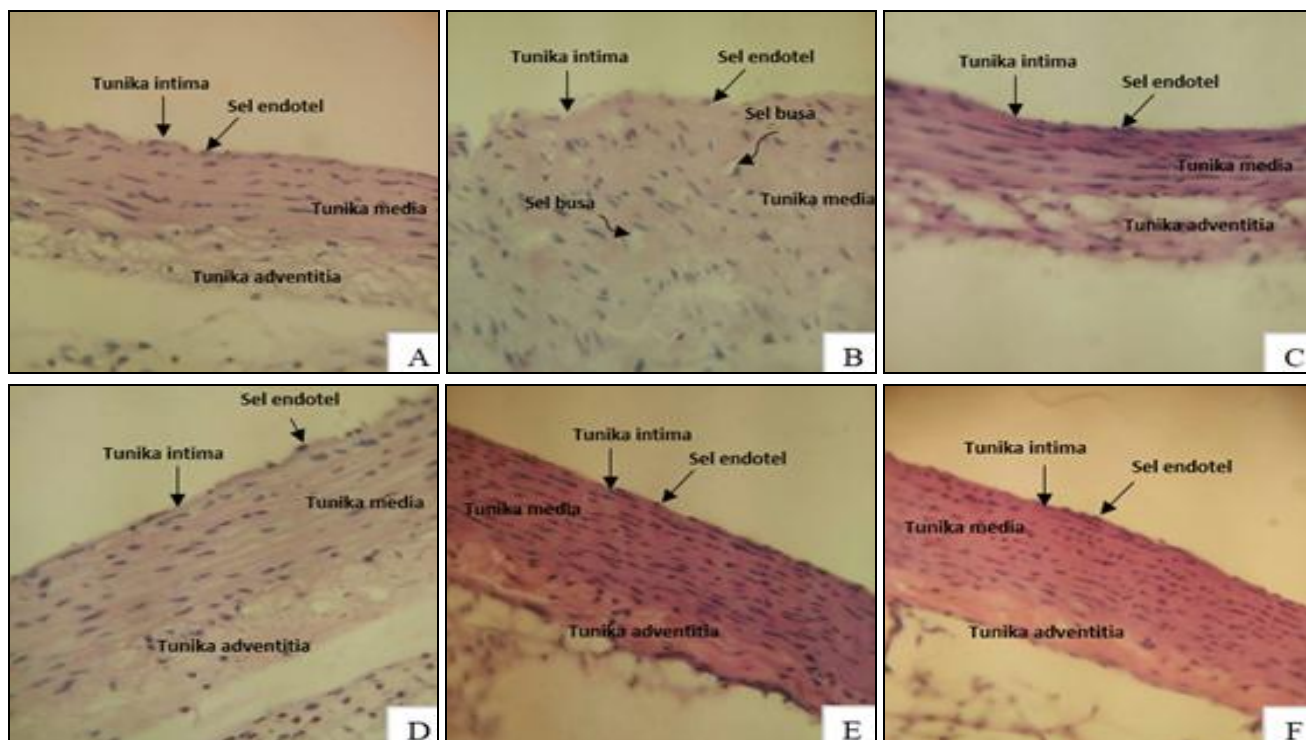


FIG. 1: MICROSCOPIC IMAGES OF CROSS-SECTIONS OF AORTA (400X MAGNIFICATION)

A = (-) Control; B = (+) Control; C = Simvastatin; D = Ker. Eth. Extr. 1; E = Ker. Eth. Extr. 2; F = Ker. Eth. Extr. 3

As shown in **Fig. 1**, the microscopic images of the cross-sectional areas of the rat aorta in the (-) control group illustrate normal endothelial cells with parallel positions on the tunica intima, smooth muscle cells horizontally oriented on the tunica media, and normal collagen and connective tissue appearance at the tunica adventitia. On the other hand, those of the (+) control group outline disorientation of smooth muscle cells and foam cell appearance in the tunica media. The foam cell formation was caused by the macrophages that penetrated the endothelial layer and then accumulated in the tunica intima and tunica media of the arteries.

Under normal conditions, endothelial cells function to maintain vascular homeostasis by preserving a balanced release between vasoconstriction and vasodilation factors as well as prothrombotic and antithrombotic substances that inhibit monocyte adhesion to the endothelial layer which prevents inflammation²².

TABLE 3: RESULTS OF FOAM CELLS CALCULATION

Group	Average number of foam cells (n=2)
(-) Control	8.5±2.12
(+) Control	66.5±4.95
Simvastatin	15.0±0.00
Ker. Eth. Extr.1	16.0±1.41
Ker. Eth. Extr.2	39.0±15.56
Ker. Eth. Extr.3	22.0±2.83

In conditions such as hyperlipidemia, hypertension, smoking, aging, and diabetes, endothelial lining can experience dysfunction in which there is an increase in permeability in the endothelial layer leading LDL and other circulating cells such as monocytes/macrophages and T-lymphocytes to enter the endothelial layer. The accumulated LDL can then undergo an oxidation process that produces an oxidized form of LDL. Oxidized LDL shows various damaging effects on vascular cells, including a rise in inflammatory cytokines, chemotactic factors, fibrinolytic regulators, and procoagulant activity. Oxidized LDL also directly elevates oxidative stress in blood vessels. The oxidative stress accelerates the process of atherosclerosis and thrombosis in blood vessels²³.

The microscopic features of the cross-sections of the rat aorta in the kerehau ethanol extract groups at all three test doses provide similar images as in the (-) control group. This suggests that kerehau

ethanol extract helps improve aortic histopathological features when compared to the (+) control group. The group administered with kerehau ethanol extract at a dose of 75 mg/kg bw yielded the number of foam cells closest to the group of simvastatin at 0.9 mg/kg bw.

Research on the isolation of flavonoid compounds in kerehau leaves carried out by Pasaribu *et al.*²⁴

CONCLUSION: The ethanol extract of kerehau leaves (*Callicarpa longifolia* Lamk.) has shown its potentials in improving atherosclerosis by reducing the lipid ratios and improving the histopathological features of aorta in hyperlipidemia induced rats.

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CONFLICTS OF INTEREST: The authors declare that they have no conflicts of interest.

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