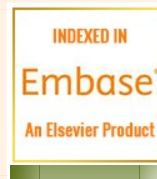




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AN OVERVIEW ON COVID-
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TO PANDEMIC

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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.

DOI: 10.13040/IJPSR.0975-8232.13(10).3833-40

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.

DOI: 10.13040/IJPSR.0975-8232.13(10).3845-56

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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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 ...

M. M. Sakyiamah

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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

Department of Biochemistry and Microbiology, Damascus University, Damascus, Syria

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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 *

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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

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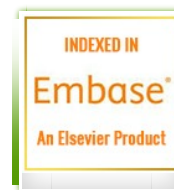
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Title	Views	PDF	Cited
<p>1. A REVIEW ON ETIOLOGY AND CHALLENGES ASSOCIATED WITH VARIOUS THERAPIES FOR THE TREATMENT OF PSORIASIS</p> <p>Psoriasis is autoimmune, hyperproliferative skin disease, which is affecting 2-5% of the population. Etiology of psoriasis is multi-factorial. The disease is identified as periodic recycle of events with red-scaly skin plaques. The epidemiology of Psoriasis is still unknown. From medication, this disease can only be prevented. Currently, there are many approaches to cure this disease, but still, n...</p> <p>N. V. Gupta, K. Kowshik * and S. Kanna Department of Pharmaceutics, JSS College of Pharmacy, JSS Academy of Higher Education and Research, JSS Medical Institutions Campus, Sri Shivaratrireshwara Nagara, Mysuru, Karnataka, India DOI: 10.13040/IJPSR.0975-8232.10(10).4409-19</p> <p>Abstract HTML Full Text PDF Citation</p>	3412	1330	0
<p>2. FLAVONOIDS IMPACT ON PREVENTION AND TREATMENT OF OBESITY AND RELATED METABOLIC RISK FACTORS</p> <p>Metabolic syndrome, the most prevailing health concern worldwide, and their incidences are increasing at a very high rate, resulting in enormous social costs. Obesity is a measure risk factor for non-communicable disease such as cardiovascular diseases, diabetes, cancer, and inflammation-based diseases. Therapeutic strategies for managing this syndrome include synthetic drugs and surgery, which en...</p> <p>V. K. Jain *, G. R. Choudhary and G. N. Darwekar School of Pharmacy, Devi Ahilya Vishwavidyalaya, Indore, Madhya Pradesh, India DOI: 10.13040/IJPSR.0975-8232.10(10).4420-29</p> <p>Abstract HTML Full Text PDF Citation</p>	2170	1138	2

RESEARCH ARTICLES

Title	Views	PDF	Cited
<p>3. VASORELAXANT AND ANTIHYPERTENSIVE EFFECTS OF RHUS PENTAPHYLLA (SEARSIA PENTAPHYLLA)</p>	2035	1014	0

Rhus pentaphylla (Jacq.) Desf. (*Searsia pentaphylla* (Jacq.) FA. Barkley) is used for its colorant and tanning properties by the local population. The bark, leaves, roots, and fruits are employed in Moroccan traditional medicine to treat gastrointestinal disorders and diarrhea. Nevertheless, the pharmacological properties of *R. pentaphylla* on cardiovascular diseases have not yet been presented. Thi...

N. Messaoudi, H. Mekhlif, M. Aou, A. Lagssyer, M. Brouham and A. Ziyar*
 Laboratory of Physiology, Genetics and Ethnopharmacology, Department
 of Biology, Faculty of Sciences, University Mohammed First, Oujda,
 Morocco
 DOI: 10.13040/IJPSR.0975-8232.10(10).4430-43

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

4. "MITREC" AS AN EFFECTIVE DRUG FOR THE TREATMENT OF COWS WITH CHRONIC ENDOMETRITIS

3791 753 0

The leading factor restraining the intensification of herd reproduction is endometritis. The article states that the microflora of cow uterine exudate in chronic purulent-catarrhal endometritis is represented by *Staphylococcus aureus*, *Escherichia coli*, *Proteus vulgaris*, *Citrobacter freundii*, *Streptococcus faecalis*, *Streptococcus faecium*, as well as anaerobes and group C *Streptococci*. The drug "Mi...

A. Semiyolov, V. Agnitsov, O. Popova, T. Rodionova, I. Pankov and N.
 Solotova*
 Department of Veterinary Medicine and Biotechnology, Saratov State
 Agrarian University named after N. I. Yavilov, Theater Square, 1, Saratov,
 Russia
 DOI: 10.13040/IJPSR.0975-8232.10(10).4444-50

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

5. COMPARISON OF THE TOXICOLOGICAL EFFECT OF LEAD-BASED HERBO-MINERAL PREPARATIONS AND THEIR CORRESPONDING METAL NANO-PARTICLE ON ENZYMATIC ACTIVITY AND GROWTH OF BAKER'S YEAST

1983 827 2

Metallic toxicity associated with Ayurvedic formulations like herbomineral preparation (Bhasma), especially because of heavy metals such as lead, has always been a matter of debate in the scientific community. Instead of that, ancient Ayurvedic literature reveals that sodhana process used for the preparation of such formulations, either decreases or eliminate the toxic effect of such heavy metals ...

S. P. Pandey and M. S. Sudhaesh*
 V. M. S. Institute of Pharmacy, Bhopal, Madhya Pradesh, India
 DOI: 10.13040/IJPSR.0975-8232.10(10).4451-61

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

6. TOXICITY STUDIES OF A SAPONIN ISOLATED FROM THE FRUITS OF MOMORDICA DIOICA IN RATS

1915 1386 0

The objective of this study was to evaluate the toxicity of a saponin isolated from the fruits of the *Momordica dioica* as per OECD guidelines. Saponin was isolated from the methanolic extract of the fruits of *M. dioica*, and acute, sub-acute, sub-chronic and chronic toxicity was evaluated. The study of the acute toxicity of saponin *M. dioica* (SMD) at a single dose of 5000 mg/kg/b.w. by oral route i...

D. K. Jha*, B. Konein and S. Samadder
 Department of Pharmacology, Karnataka College of Pharmacy, Bangalore,
 Karnataka, India
 DOI: 10.13040/IJPSR.0975-8232.10(10).4462-76

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

7. STABILITY INDICATING ASSAY METHOD DEVELOPMENT AND VALIDATION OF EDOXABANTOSYLATE MONOHYDRATE: A COMPREHENSIVE STUDY INVOLVING IMPURITIES ISOLATION, IDENTIFICATION AND DEGRADATION KINETICS DETERMINATION IN VARIOUS CONDITIONS

2244 1029 0

Objective: State of the art, robust and environmentally benign stability indicating assay method (SIAM) has been developed for model drug Edoxabantosylate (EDO) Methods: Successful RP-HPLC chromatographic method was accomplished on a CHROMBUDGET® 100-5-C18 column (250 mm × 4.6 mm, 5 μ) column using methanol and acetate buffer in the ratio of 53:47 having 2.9 pH and 10mM buffer strength. The deg...

S. Masani, P. Shah, S. Sami and S. Rajput*

Faculty of Pharmacy, G.H. Patel Pharmacy Building, The Maharaja Sayajirao

University of Baroda, Vadodra, Gujarat, India

DOI: 10.13040/IJPSR.0975-8232.10(10)4477-87

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)**8. PHARMACOLOGICAL EVALUATION OF ANTI-ULCER EFFECTS OF COMBINED DOSES OF ALOE VERA AND VITAMIN-E AGAINST INDOMETHACIN INDUCED PEPTIC ULCER MODEL**

1810

620

0

Peptic Ulcer Disease (PUD) is one of the most prevalent pathogenic conditions which affects around 5-10% of the global population. Helicobacter pylori infection and the use of Non-Steroidal Anti-inflammatory Drugs (NSAIDs) are two of the most common etiological causes in the PUD pathogenesis. First line treatment for PUD involves use of drugs which cause acid suppression or target against the erad...

A. Srivastava * and R. Singh

4488-4493

Hygia Institute of Pharmaceutical Education and Research, Faizolaganj,

Lucknow, Uttar Pradesh, India

DOI: 10.13040/IJPSR.0975-8232.10(10)4488-93

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)**9. EFFECTS OF USING DIFFERENT LEVELS OF CHROMIUM PICOLINATE ON PERFORMANCE, SOME BLOOD BIOCHEMICAL AND INTESTINAL MORPHOLOGY AND MICROFLORA IN ROSS 308 BROILER CHICKS EXPOSED TO THE HEAT STRESS CONDITION**

1555

571

1

This study was aimed to investigate the effects of different levels of dietary chromium picolinate (CrPic) on performance, some blood biochemical and intestinal morphology and microflora in Ross 308 broiler chicks. A total of 240 broiler chickens Ross 308 strain, from 21 to 42 days old were used in a completely randomized design. All chickens consumed a diet based on the corn-soybean meal, and the...

O. Hamidi, M. Chamani, H. Ghahri *, A.A. Sadeghi and H. Malekinajad

4494-4500

Department of Animal Science, College of Veterinary Medicine, Urmia

Branch, Islamic Azad University, Urmia, Iran

DOI: 10.13040/IJPSR.0975-8232.10(10)4494-00

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)**10. ROLE OF ANDROGRAPHIS PANICULATA ON ALTERED STEROIDOGENESIS AND OXIDATIVE IMPAIRMENT IN OVARY OF MICE SUBJECTED TO ARSENIC INTOXICATION**

1399

538

0

The present study was designed to determine the role of Andrographis paniculata (AP; 50 mg/kg) against the oxidative stress caused by the arsenic (0.5 and 1.0 mg/kg) for 30 days in adult mice. The results of in-vivo studies demonstrated that arsenic treatment resulted in a significant dose-dependent increase in the ovarian arsenic level and lipid peroxidation (LPO), followed by a marked reduction ...

D. M. Damore * and M. V. Rao

4501-4506

Department of Zoology, Bhawan's Sheth B. A. College of Science, Gujarat

University, Ahmedabad, Gujarat, India

DOI: 10.13040/IJPSR.0975-8232.10(10)4501-06

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)**11. FORMULATION AND EVALUATION OF pH TRIGGERED IN-SITU OCULAR GEL OF OFLOXACIN**

2043

666

1

Rapid precorneal elimination of the drug in conventional ophthalmic solution leads to poor bioavailability and less therapeutic response, which can be overcome by the use of in-situ gel forming system that is instilled into the eye and undergoes a sol-gel transition in the cul-de-sac. The aim of the present study was to formulate and evaluate pH-triggered in-situ gels for ophthalmic delivery of of...

K. Wadhwa *, C. Sharma, M. Goswami and N. Thakur

4507-4512

University Institute of Pharma Sciences, Chandigarh University, Gharuan,

Mohali, Punjab, India

DOI: 10.13040/IJPSR.0975-8232.10(10)4507-12

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)**12. SYNTHESIS, CHARACTERIZATION, AND DNA- BINDING INTERACTION STUDIES OF A NEW MANNICH BASE**

1615

714

1

AND IT'S METAL COMPLEXES

Cyclic imides such as succinimides, maleimides, phthalimide and their derivatives contain an imide ring and a general structure –CO-N(R)-CO- that confers hydrophobicity and neutral nature. Succinimide (pyrrolidine 2,5-dione) is a synthetically versatile substrate used for the synthesis of heterocyclic compounds and as a raw material for drug synthesis. Derivatives of succinimide are of important ...

S. Sudhasankar

4513-4520

Department of Chemistry, SRMIST, Karankulathur, Tamil Nadu, India.

DOI:10.13040/ijpsr.0975-8232.10(10).4513-20

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

13. COMPARATIVE DISSOLUTION BEHAVIOUR OF TEN MARKETED CHLORAMPHENICOL CAPSULES IN INDONESIA

1673

596

0

Background: Chloramphenicol capsules are found in several brands with different prices in the market. This study aimed to obtain in-vitro biopharmaceutics quality data from the generic and branded name products. Methods: Ten products were selected, consisted of 3 generics (A, B and C) and 7 branded names (D, E, F, G, H, I and J); F was chosen as an innovator. The dissolution test was performed by ...

H. Lucida *, L. G. Fitri and Dachnyandis

4521-4525

Department of Pharmaceutics, Faculty of Pharmacy, Universitas Andalas

Padang, Indonesia.

DOI:10.13040/ijpsr.0975-8232.10(10).4521-25

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

14. ANTIANXIETY AND ANTIDEPRESSANT ACTIVITY OF VALERIANA PYROLAEOFOLIA

1157

487

0

Aim of the present study was to evaluate the antianxiety and antidepressant activity of Valeriana pyrolaefolia, a member of family Valerianaceae. The antianxiety and antidepressant activities of dichloromethane extract were evaluated using the elevated plus-maze model and porsolt's despair swim test. The studies were conducted on lacca mice, and the test materials were administered per oral rout...

A. Kumar *, M. Karan and K. Yasht

4526-4530

University Institute of Pharmaceutical Sciences, Punjab University,

Chandigarh, Punjab, India.

DOI:10.13040/ijpsr.0975-8232.10(10).4526-30

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

15. DEVELOPMENT AND VALIDATION OF RP-HPLC METHOD FOR THE DETERMINATION OF DASATINIB IN TABLET DOSAGE FORM

2731

1252

1

The objective of the present study was to develop and validate a novel RP-HPLC method for the determination of Dasatinib in the pharmaceutical dosage form. Chromatographic separation was conducted on agilent technologies-1260 series with the G1311C quaternary pump, Thermo Scientific C18 column (4.6 mm i.d. × 250 mm, 5 µm particle size) and equipped with photodiode array detector G1315D. The mobi...

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4531-4537

Department of Pharmaceutical Analysis, Vignani Pharmacy College,

Vodanudi, Andhra Pradesh, India.

DOI:10.13040/ijpsr.0975-8232.10(10).4531-37

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

16. SPAN 40/TWEEN 80-BASED SOYBEAN OLEOGELS: MODELING OF GELATION KINETICS AND DRUG RELEASE

1758

614

4

Background: Oleogel is a thermo-reversible, viscoelastic, semi-solid self-assembled preparation in which an apolar phase gets immobilized within a 3-D networked structure formed via physical or chemical interaction with different organogelators. Objective: The objective of the present investigation was to develop drug-loaded (paracetamol) Span 40 / Tween 80-based soybean oleogels for topical appli...

D. Ashi *, S. B. Majee and G. R. Biswas

4538-4545

Department of Pharmacy, NSHM Knowledge Campus, Kolkata-Group of

Institutions, Kolkata, West Bengal, India.

DOI:10.13040/ijpsr.0975-8232.10(10).4538-45

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

17. **IN-SILICO MOLECULAR SCREENING OF NATURAL PLANT PRODUCTS FOR THE IDENTIFICATION OF NOVEL POTENTIAL CHEMOTHERAPEUTIC AGENTS AGAINST BREAST CANCER** 1905 707 2

In-silico computational approaches help in ascertaining drug targets via bioinformatics tools. HER2 is the most valuable therapeutic target for breast cancer therapy. The overexpression of HER2 protein plays a very critical role in the progression of breast cancer. Plant-derived natural products have received increasing attention over the past 20-30 years for their potential as novel therapeutic a...

K. S. N. M. Megana and Y. Suneetha *

Department of Zoology, Sri Venkateswara University, Tirupati, Andhra Pradesh, India

DOI: 10.13040/IJPSR.0975-8232.101101.4546-51

4546-4551

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

18. **SYNTHESIS AND ANTIMICROBIAL STUDIES OF NOVEL GLYCOSYL THIOCARBAMIDES** 1128 1110 0

Glycosyl isothiocyanates have been widely used as important intermediates in the synthesis of many biologically active glycosyl derivatives. The glycosyl isothiocyanates have been the focus of synthetic attention during recent years because of their potential pharmacological properties. Thiourea and their derivatives are important versatile reagent in organic synthesis and show strong antibacteria...

A. D. Mangra, S. J. Munshi and P. P. Nayak

P. G. Department of Chemistry, Sri P. M. Patel Institute of P. G. Studies & Research in Science, Udaipur, Gujarat, India

DOI: 10.13040/IJPSR.0975-8232.101101.4552-56

4552-4556

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

19. **CHARACTERIZATION AND EVALUATION OF NIZATIDINE FLOATING MICROSPHERES BASED DRUG DELIVERY SYSTEM FOR ANTI-ULCER ACTIVITY** 1675 630 2

Objective: The purpose of the present study to develop gastro-retentive drug delivery formulation for enhancing GRT, including the physiological and formulation variables affecting gastric retention. It is a widely employed approach to retain the dosage form in the stomach for an extended period and release the drug slowly that can address many challenges like poor bioavailability. Methods: Floati...

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Oriental College of Pharmacy & Research, Oriental University, Indore, Madhya Pradesh, India

DOI: 10.13040/IJPSR.0975-8232.101101.4557-67

4557-4567

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

20. **CITRULLUS COLOCYNTHIS PHYTOSOMES: DEVELOPMENT AND PHYSIOCHEMICAL CHARACTERIZATION** 1216 553 2

Present work is aimed at development and characterization of phytosomes, novel drug delivery dosage form used to improve the bioavailability of the drug, containing ethanolic, aqueous, dichloromethane and ethyl acetate extract of Citrullus colocynthis to meet the need for better effectiveness and safety. Required phytosomal formulations were developed using different extracts of Citrullus colocynt...

A. Bani *, S. Arora, A. Goyal and A. Sharma

Chitkara College of Pharmacy, Chitkara University, Rajpura, Punjab, India

DOI: 10.13040/IJPSR.0975-8232.101101.4568-73

4568-4573

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

21. **FORMULATION AND EVALUATION OF GASTRO RETENTIVE NOVEL FLOATING IN-SITU GELLING SYSTEM OF CURCUMIN** 1805 613 0

The objective of the present study was to formulate and evaluate a gastro-retentive stomach specific novel floating in-situ gelling system of curcumin for potentially treating gastric ulcer, associated with Helicobacter pylori. The in-situ gel of curcumin was prepared by dissolving different concentrations of gelling polymer like sodium alginate in distilled water at 60 °C. After cooling to 40 °...

A. Padhan *, B. K. Nanda and B. L. Behera

4574-4586

PG Department of Pharmaceutics, The Pharmaceutical College, Barpali

Odisha, India

DOI:10.13040/IJPSR.0975-8232.10(10).4574-86

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)**22. ASSESSMENT OF IN-VITRO ANTICANCER AND ANTIBACTERIAL ACTIVITIES OF CARCHORUS HIRSUTUS PHYTOMEDIATED OPTIMIZED NANOSILVER**

1529

514

0

The elected work reports for the first time successfully synthesized nanosilver from the aqueous leaf extract of the *Carchorus hirsutus* plant. Because the phytochemicals within the leaf extract were creditworthy for the reduction of silver ions as the active nanosilver particles, in addition to this, they act as the capping agents who had been envired at the surface of the particles. UV-Vis spec...

D. Ashok *¹, S. Raju and K. Rama

4587-4597

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DOI:10.13040/IJPSR.0975-8232.10(10).4587-97

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)**23. HPTLC METHOD DEVELOPMENT AND VALIDATION FOR IDENTIFICATION AND QUANTIFICATION OF LUPEOL IN THE LEAVES OF ALSTONIA SCHOLARIS**

1266

523

0

In ancient literature plant *Alstonia scholaris* (Apocynaceae) has been considered medicinally important in the treatment of various ailments. Extracts of this plant have shown wide spectra of pharmacological activities like anti-cancer, hepatoprotective, anti-inflammatory, anti-diabetic, etc. These activities can be attributed to the depositories of various phytoconstituents like alkaloids, flavono...

M. M. Sanaye *¹ and S. Zehra

4598-4604

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DOI:10.13040/IJPSR.0975-8232.10(10).4598-04

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)**24. ESTIMATION OF IPRATROPIUM BROMIDE BY EXTRACTION FREE SPECTRO-PHOTOMETRIC METHOD USING SULPHONAPHTHALEIN DYE**

1538

546

0

The present paper portrays a simple, rapid, nonextractive spectrophotometric method for the estimation of an anticholinergic drug, Ipratropium Bromide. The method is based on the formation of an instantaneous stable yellow colored ion pair complex of drug with a chloroformic solution of reagent Bromophenol Blue (BPB) which shows absorption maxima at 416 nm. Job's plot of continuous variation aff...

S. M. Raj and V. G. Jankantil *¹

4605-4612

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DOI:10.13040/IJPSR.0975-8232.10(10).4605-12

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)**25. SYNTHESIS OF NEFOPAM ANALOGUES AND CHARACTERISATION**

1666

803

0

Modified Benzoxazocine moiety of Nefopam with N-Protected-ethanolamine, fluorobenzene benzylbromide, 2,3-dimethyl-benzene, naphthalene, fluoro-naphthalene. In these modification Friedel Craft alkylation plays vital role with using grignard reagent and aluminum chloride with the starting phthalic anhydride to form acid compound and was converted to amide compound with using of thionyl chloride, N-Pr...

K. Srinivasachary *¹, S. Tiwari, Y. S. Somannavar and B. Ramadevi

4613-4635

*Chemical Research and Development, APL Research Centre-II, Aurpbindo,**Pharma Ltd, Indrakaran, Sangareddy, Telangana, India*

DOI:10.13040/IJPSR.0975-8232.10(10).4613-35

[Abstract](#)[HTML Full Text](#)[PDF](#)[Citation](#)**26. NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY BASED URINARY METABOLIC PROFILING IN POST**

1145

498

0

TRAUMATIC STRESS DISORDER RATS

Though at present, Post-Traumatic Stress Disorder (PTSD) stands to be one of the major mental debilitating psychiatric disorders, however, its clinical diagnosis remains unachieved due to the absence of any biological marker. Hence, this study is aimed at the identification of putative biological underpinnings of PTSD through the metabonomic approach. For this purpose, the animal model based NMR s...

P. Singh

4636-4643

Department of Zoology, University of Delhi, Delhi, New Delhi, India

DOI:10.13040/IJPSR.0975-8232.10(10).4636-43

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

27. ANTIBACTERIAL, ANTIOXIDANT AND CYTOTOXIC ACTIVITY OF BACTERIAL CAROTENOIDS ISOLATED FROM RHODOPSEUDOMONAS PALUSTRIS KRPR01 AND KRPR02

2470

778

3

The microbial pigments have more applications than synthetic pigments and are easily biodegradable and safe to use. Among all bacteria, the anoxygenic phototrophic purple non-sulfur bacteria have more applications and can synthesize different pigments. In this present study, bacterial carotenoids were isolated from the two novel strains of Rhodospseudomonas palustris and evaluated its applications....

R. Kavyan, K. R. Kudle and P. R. M. Padigya *

4644-4649

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University, Hyderabad, Telangana, India

DOI:10.13040/IJPSR.0975-8232.10(10).4644-49

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

28. ANTIEPILEPTIC ACTIVITY OF RUBIADIN ISOLATED FROM THE ROOTS OF RUBIA CORDIFOLIA IN MICE

1149

458

3

Epilepsy is a disorder of the central nervous system. A seizure occurs when the brain's nerve cells misfire and generate a sudden uncontrolled surge of electrical activity in the brain. Seizures can be controlled with modern medicines and surgical techniques and are found to have so many side effects. Natural products from folk remedies are an alternative source of anti-epileptic drugs with bett...

A. Verma *, V. Singh and B. Kumar

4650-4656

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DOI:10.13040/IJPSR.0975-8232.10(10).4650-56

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

29. AN ATTEMPT TO UNDERSTAND AND VALIDATE THE FACTORS CONTROLLING IN-SITU RAFT FORMATION PROCESS

1238

518

0

In this study, in-situ raft forming Levofloxacin Suspension formulation was developed. In-vitro conditions like temperature, pH, and RPM simulating the in-vivo conditions like gastric pH, body temperature, and gastric motility respectively were identified as critical process parameters in system scale-up studies. Challenging and characterization were performed in-vitro. The working limits were ide...

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4657-4667

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Maharashtra, India

DOI:10.13040/IJPSR.0975-8232.10(10).4657-67

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

30. FORMULATION AND EVALUATION OF ENTERIC COATED ASPIRIN TABLET BY USING BIOEPOXY RESIN AS COATING MATERIAL

8362

1681

1

An enteric coating is a polymer barrier applied to oral tablets; it prevents dissolution and disintegration of tablet in the gastric environment. Some drugs like aspirin that have an irritant effect on the GI Track after administration, can be prepared as enteric-coated tablet. Aspirin is used to reduce fever and to relieve pain from various conditions. By coating aspirin tablet with polymer it pr...

S. S. Tiwari *, S. J. Wadher and D. S. Yemul

4668-4672

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Teerth Marathwada University, Nashik, Maharashtra, India

DOI:10.13040/IJPSR.0975-8232.10(10).4668-72

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

31. EVALUATION OF ANTI-INFLAMMATORY ACTIVITY OF TILIACORA ACUMINATA EXTRACT IN RATS 1068 537 2

Inflammation is part of the body's immune response. There can be four primary indicators of inflammation: pain, redness, heat or warmness and swelling. Plants have the ability to synthesize a wide variety of phytochemical compounds as secondary metabolites which shows anti-inflammatory activity. The anti-inflammatory activity of ethanol extract of Tiliacora acuminata stem and leaf was evaluated usi...

A. Rajesh, A. Das, P. S. Tresina and Y. R. Mohan *

4673-4676

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DOI: 10.13040/ijpsr.0975-8232.10(10).4673-76

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

32. IMPACT OF HYDROTHERMAL ISOLATION METHOD ON THE RECOVERY OF FENUGREEK SEED HEMI-CELLULOSE ANALYZED THROUGH FTIR-DSC-SEM INTERPRETATIONS 1220 504 1

Natural Herbal components like seeds mucilages, exudates, gums, polysaccharides, celluloses, hemicelluloses, starch, etc. are now a day's exploited as excipients. Literature reveals medicinal, nutraceutical and pharmaceutical uses of fenugreek seed hemicelluloses in dosage form design. Hemicelluloses like galactomannans are water-soluble polysaccharides highly susceptible to hydrolysis either by...

G. S. Deokar *, S. S. Shewale, S. J. Kahinagar and P. D. Ahire

4677-4684

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Maharashtra, India.

DOI: 10.13040/ijpsr.0975-8232.10(10).4677-84

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

33. TLC BIOAUTOGRAPHY AND LCMS-MS ANALYSIS FOR IDENTIFICATION OF COMPOUNDS HAVING INHIBITORY ACTIVITY AGAINST STAPHYLOCOCCUS AUREUS IN ABIES WEBBIANA LEAVES EXTRACT 1497 627 2

This study was performed to identify the antimicrobial compounds in Abies webbiana leaves. The antimicrobial compounds were identified by LCMS-MS. The microbial inhibitory activity was evaluated on Staphylococcus aureus ATCC 6538 using REMA technique and Agar-overlay TLC bioautography. The chloroform extract of Abies webbiana leaves was used for the study. The MIC against Staphylococcus aureus was...

A. Ambre, M. Bulbule, Y. Shirat *, D. B. Kandule, A. Singh and M. Pillai

4685-4693

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Mumbai, Maharashtra, India.

DOI: 10.13040/ijpsr.0975-8232.10(10).4685-93

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

34. COMPARATIVE ACUTE AND SUB-ACUTE TOXICITY STUDY OF HYDRO-ALCOHOLIC EXTRACTS OF CENTELLA ASIATICA AND EVOLVULUS ALSINOIDES IN SWISS ALBINO MICE 1444 701 3

In this study, the in-vivo toxicity of Centella asiatica & Evolvulus alsinoides were evaluated by acute and sub-acute toxicity assays according to the guidelines of OECD 423 & 407 respectively. For LD50 evaluation, a single dose of hydro-alcoholic extracts of both plants was orally administered to Swiss albino mice at doses of 200, 400, 800, 1600 and 2000 mg/kg. Then the animals were obse...

M. K. Yadav *, S. K. Singh, M. Singh, S. S. Mishra, A. K. Singh, J. S. Tripathi

4694-4699

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University, Varanasi, Uttar Pradesh, India.

DOI: 10.13040/ijpsr.0975-8232.10(10).4694-99

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

35. WOUND HEALING ACTIVITY OF ETHANOLIC EXTRACT OF LUFFA ACUTANGULA (FRUIT) 1281 520 0

The present study investigates the wound healing activity of ethanolic extract of the fruit of Luffa

acutangula. The medicinal values of the *Luffa acutangula* have been mentioned ancient literature as useful in disorders of wound. Dried fruits of *Luffa acutangula* were powdered and extracted with ethanol using soxhlation method. Ethanolic extract of *Luffa acutangula* was evaluated for its wound heali...

B. Verma, S. Dwivedi, S. S. Raghuvanshi, N. Vyas, S. Malviya and A. Khana
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 Sciences, Indore, Madhya Pradesh, India.
 DOI:10.13040/ijpsr.0975-8232.10(10).4700-04

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

36. PHARMACOKINETICS AND BIOEQUIVALENCE ASSESSMENT OF ORAL RIVAROXABAN TABLET IN IRANIAN HEALTHY VOLUNTEERS 2865 822 0

Rivaroxaban is utilized as a direct factor Xa inhibitor for the prevention and remedy of thromboembolic disorders. This study aimed to evaluate a generic version of rivaroxaban 10 mg tablet. Considering previous reports of safety and tolerability of a single dose (1.25-80 mg) of rivaroxaban, this study used a randomized, single-dose two-way crossover of rivaroxaban in 28 healthy volunteers, with a...

M. Dibaei, A. Haghghi, A. A. Golatshifar, K. Sadeghi, N. Pourghasemi, A. Tavassoli and M. R. Rouini
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 Medical Sciences, Tehran, Iran.
 DOI:10.13040/ijpsr.0975-8232.10(10).4705-10

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

37. GC-MS INVESTIGATION OF PHYTOCOMPONENTS PRESENT IN ETHANOLIC EXTRACT OF PLANT ICHNOCARPUS FRUTESCENS (L.) W. T. AITON AERIAL PART 1207 700 0

Ichnocarpus frutescens (Apocynaceae) generally renowned as Kali Sariva in Sanskrit, Krishna Sariva in Hindi which is a large, evergreen, red woody climber, native to India, Java, China, Southeast Asia, Ceylon, Northern Australia and found ascending to an altitude of 4,000 ft. Different tribes of India are used this plant as a substitute of Indian Sarsaparilla (*Hemidesmus indicus*). It has been used...

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 Odisha, India.
 DOI:10.13040/ijpsr.0975-8232.10(10).4711-16

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

38. GARLIC POWDER PREPARATION METHODOLOGY TO IMPROVE ALLICIN CONTENT 2908 728 0

Background: Garlic has been used in world culinary art as well as in herbal medicine since long back. Allicin, an active moiety in garlic, is truly recognized as heart of garlic. But allicin is highly unstable and undergoes formation of numbers of sulfur-containing compounds with reduced allicin content. The major problem associated with dosage form development is instability of allicin. Objective...

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 DOI:10.13040/ijpsr.0975-8232.10(10).4717-23

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

39. PHARMACEUTICAL VALIDATION & PROCESS CONCEPTUALISATION OF ANCIENT INDIAN CALCIUM PREPARATION: SHANKHA BHASMA 2305 834 0

In the present study, the pharmaceutical and therapeutic dimensions of Shankha Bhasma (Classical Ayurvedic marine medicine) is explored as a substitute for calcium supplements available in the market. Shankha Bhasma was prepared & standardized by Ayurvedic pharmaceutical procedure accordingly in Rasa Tarangini (a classical 20th-century book on Ayurvedic pharmaceutical medicine). Conch shell (S...

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 Pradesh, India.

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

DOI:10.13040/IJPSR.0975-8232.10(10).4734-30

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

40. SYNTHESIS OF PURE AND BIO MODIFIED CALCIUM OXIDE (CaO) NANOPARTICLES USING WASTE CHICKEN EGG SHELLS AND EVALUATION OF ITS ANTIBACTERIAL ACTIVITY 3176 844 7

Calcium oxide nanoparticles (CaO NPs) gain great value in the areas of energy storage and drug delivery systems. Due to good porosity, it finds its part in storage systems and its biocompatibility earns it a good value in drug delivery and gene transfection. Synthesis of nanoparticles by waste materials and plants of metal oxide is gaining considerable interest due to environmentally friendly reac...

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DOI:10.13040/IJPSR.0975-8232.10(10).4731-37

[Abstract](#)
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[PDF](#)
[Citation](#)

41. DEVELOPMENT AND INVESTIGATION OF THERMO-SENSITIVE ORGANOGEL OF DICLOFENAC SODIUM FOR IN-SITU IMPLANTATION 1226 470 0

The aim of the present study was to develop and evaluate thermo-sensitive in-situ implant forming injectable organogel systems of diclofenac sodium for prolonged drug effects. The formulations were prepared by separately dissolving fatty acids such as arachidic acid, stearic acid or palmitic acid in injectable soybean oil. The organogels were evaluated for physicochemical parameters as well as for...

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DOI:10.13040/IJPSR.0975-8232.10(10).4738-47

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

42. LOW COST AND RAPID BIOSYNTHESIS OF SILVER NANOPARTICLES USING CASSIA TORA LEAF EXTRACT 1241 474 0

Chemical, physical, and biological methods have been developed to synthesis nanoparticles but chemical and physical methods are involved in the production of toxic by-products which are hazardous moreover the methods are very expensive. To synthesis stable metal nanoparticles with controlled size and shape, there have been searched for inexpensive, safe, and reliable and "green" approach. The ...

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DOI:10.13040/IJPSR.0975-8232.10(10).4748-52

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

43. DEVELOPMENT AND CHARACTERIZATION OF MANNOSYLATED QUERCETIN LOADED LIPOSOMES FOR SKIN CARCINOMA 1243 572 2

The solar UV radiation is the major trigger factor that causes skin cancer. Nearly 65% of cases of melanoma occurs due to high exposure to the UV radiation. It also accounts for 90% of the nonmelanoma skin cancers also referred to as NMSC also including the cases of basal cell carcinoma (BCC) and the squamous cell carcinoma (SCC). The rate of malignancy in other cases has seemed to get reduced bu...

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Chhatisgarh, India

DOI:10.13040/IJPSR.0975-8232.10(10).4753-59

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

44. FORMULATION AND EVALUATION OF ANTIHYPERTENSIVE BILAYER TABLET 2212 785 2

The present research work was carried out to Formulate and evaluation of bilayer tablet dosage form for the treatment of Hypertension. The objective of this study to compare the specific characteristics of Olmesartan Midoxomil [Angiotensin II receptor antagonist] and Hydrochlorothiazide [Thiazide Diuretics] in order to design stable formulation. It can be concluded that Olmesartan Midoxomil [Angio...

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 DOI:10.13040/IJPSR.0975-8232.10(10).4760-75

4760-4775

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

45. THE PATTERN OF ANTIBIOTICS PRESCRIPTION AT AL-RASS HOSPITAL

1685

556

[1](#)

Background: The irrational uses of antibiotics play a crucial role in emerging of antimicrobial resistance. So regular review of the prescribing patterns represents an effective monitoring study that enhances rational prescription of antibiotics. This study evaluated the prescribing pattern of antibiotics at Al-Rass hospital in Qassim region. Methodology: A retrospective cross-sectional study was ...

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 DOI:10.13040/IJPSR.0975-8232.10(10).4776-81

4776-4781

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

46. THE INFLUENCE OF DIETARY COMPOSITION TO METABOLIC SYNDROME INCIDENCE

1081

456

[0](#)

Metabolic syndrome is a group of several clinical conditions which is related to the prevalence of another disease such as cardiovascular disease, diabetes mellitus (DM) or increased fasting blood glucose level, visceral obesity, hypertension, etc. The major factor that affects the metabolic syndrome occurrence is diet composition. This research aimed to determine the influence of diet composition ...

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 DOI:10.13040/IJPSR.0975-8232.10(10).4782-85

4782-4786

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

47. GENDER WISE PREVALENCE OF COMORBIDITIES AND MEDICATION ADHERENCE AMONG TYPE 2 DIABETICS IN MALAPPURAM

1296

512

[4](#)

Background: Type 2 diabetes is a major lifestyle disease often seen with comorbidities or complications. This study is conducted to find out the gender-wise prevalence of comorbidities and medication adherence among the diabetics in Malappuram. Methods: A cross-sectional study was conducted among the 179 diabetics selected for the study. A pre-tested interview schedule was used to collect informat...

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 DOI:10.13040/IJPSR.0975-8232.10(10).4797-99

4797-4799

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

48. AN ANALYTICAL STUDY ON THE CLINICAL EFFICACY OF PEENISA PUGAI TOWARDS THE MANAGEMENT OF PEENISAM (SINUSITIS)

1463

497

[0](#)

Pugai (fumigation) is one among the external medicines in treating a variety of diseases with the fumes of herbs or aromatic substance. Peenisa pugai is an external therapeutic measure that has been indicated in Siddha literature for the effective management of Peenisam that can be symptomatically correlated with that of Sinusitis. The aim of the present Pilot study was to compare the efficacy of ...

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 DOI:10.13040/IJPSR.0975-8232.10(10).4794-98

4794-4798

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

49. SCREENING OF 4-[(1,3,4)OXADIAZINO[6,5-b]INDOLE-3-YL)ANILINE DERIVATIVES FOR ANTI-BACTERIAL

1023

551

[0](#)

ACTIVITY BY IN-SILICO AND IN-VITRO METHODS

Schiff bases of isatin are investigated overtime for their pharmaceutical properties and have been found to have various activities such as anti-viral, anti-bacterial, anti-inflammatory, analgesic, anti-HIV, anti-depressant, anti-convulsant, fungicidal, etc. Isatins are treated with hydrazine derivatives and cyclized by sulfuric acid. These compounds are alkylated by di alkyl aminoalkyl halides in...

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THE INFLUENCE OF DIETARY COMPOSITION TO METABOLIC SYNDROME INCIDENCE

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Keywords:

Blood glucose,
Blood pressure, HDL,
Metabolicsyndrome, Triglyceride

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ABSTRACT: Metabolic syndrome is a group of several clinical conditions which is related to the prevalence of another disease such as cardiovascular disease, diabetes mellitus (DM) or increased fasting blood glucose level, visceral obesity, hypertension, *etc.* The major factor that affects the metabolic syndrome occurrence is diet composition. This research aimed to determine the influence of diet composition on metabolic syndrome prevalence. This study was performed using *in-vivo* method. The animal was divided into three groups, each administered a different composition of diet, which was high carbohydrate, high lipid, and high protein diet for 42 days. The parameters were body weight, HDL and triglyceride level, blood glucose level, and blood pressure. The results showed that each diet composition affected the glucose, HDL, triglyceride, and blood pressure level differently. The high-fat diet gave the most significant effect in HDL reducing and blood pressure elevation, while the high carbohydrate diet gave the most significant effect in blood glucose and triglyceride level elevation. It could be concluded that the lowest affecting food to metabolic syndrome was the high protein group, while the high fat and high carbohydrate food had higher risk to induce the metabolic syndrome.

INTRODUCTION: Metabolic syndrome (MetS) is a term for a group of certain clinical conditions which can increase cardiovascular disease risk that is diabetes mellitus or increasing in fasting blood glucose level, visceral obesity, dyslipidemia, and hypertension. There are 20-25% of the world's adult population have metabolic syndrome and those with metabolic syndrome are twice as likely to die from and three times as likely to have a heart attack and stroke compared to those without metabolic syndrome.

In addition, metabolic syndrome raises the fivefold greater risk of diabetes mellitus¹. MetS is a chronic low-grade inflammation as a result of complex interaction between genetic and environmental factor. Several factors affect the development of MetS are visceral adiposity, insulin resistance, endothelial dysfunction, genetic susceptibility, atherogenic dyslipidemia, elevated blood pressure, hypercoagulable state, and chronic stress². Metabolic syndrome is characterized by at least three of the five criteria according to WHO, IDF and NCEP-ATPIII (the National Cholesterol Education Program - Adult Treatment Panel III), that are central obesity (obesity with abdominal circumference that exceeds 80 cm in women and 90 cm in men), elevated triglyceride levels, decreased HDL-cholesterol, fasting glucose up to 110-126 mg/mL (due to decreased insulin sensitivity), and elevated blood pressure^{3,4,5}.

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Metabolic syndrome was said more related to central obesity compared with general obesity. Central obesity was thought to be the main cause of insulin resistance, which was one of the main markers of metabolic syndrome. Furthermore, central obesity could also trigger the release of pro-inflammatory compounds responsible for the diabetes mellitus, hyperlipidemia, and cardiovascular disease occurrence⁶.

“Let food be thy medicine and medicine be thy food”, a phrase from Hippocrates the Ancient Greek father of modern medicine, was indicated that the idea of a relationship between food and health was not a new one. Carbohydrate, lipid, and protein were the primary nutrients or macronutrients we needed. The difference between these three macronutrients was the total amount of energy. The fat contained 9 kcal/g, while protein and carbohydrate contained 4 kcal/g⁷. These differences would determine the total energy intake per day and thus affected the energy balance that in the end could lead to obesity and metabolic syndrome. For example, a high-fat diet could induce weight gain because of excessive energy intake⁸. On the other hand, carbohydrate was also blamed for the incidence of obesity and metabolic syndrome⁹, although it might be because of the wrong choice of the type of carbohydrate^{9,10}. The aim of this study was to evaluate the influence of dietary composition on metabolic syndrome incidence.

MATERIALS AND METHODS:

Animals: Male Wistar mouse 2-3 months old weighing 200-250 g. The animals were kept at standard laboratory conditions at 24-26 °C, humidity 70-75%, and 12 h light/dark cycle. Animals were fed with a treatment diet and water *ad libitum*. The methods in this study were performed in accordance with ethics and guided for animals care and used (139/UN6.KEP/EC/2018).

Administration of Different type Diet Composition in Order to Induce Metabolic Syndrome: Each animals group was fed with 3 different types of diet composition; group 1 was fed with high-fat diet (60% fat), group 2 with high carbohydrate diet (60% carbohydrate), and group 3 with high protein diet (60% protein) for 42 days¹¹. The parameters were body weight, insulin

sensitivity, blood HDL and triglyceride level, and blood pressure. These parameters were measured at before treatment and at 21, 35, and 42 days during treatment.

Insulin Tolerance Test: Before the study was conducted and at 21, 35, and 42 days after treatment, an insulin tolerance test (ITT) using insulin 0.75 U/kg bw, ip, was performed after 4 hours fasting period. Blood glucose concentration from the tail vein was measured using the Easy Touch® blood glucose meter at 0, 15, 30, 45, and 60 minutes after insulin administration¹².

RESULTS:

Effect of Dietary Patterns to Body Weight: The body weight elevation after 42 days administration of different type of diet was shown in **Table 1**.

TABLE 1: BODY WEIGHT PROFILE DURING 42 DAYS OF DIET ADMINISTRATION

Diet composition	Bodyweight at day- (g)			
	0	21	35	42
High fat	208±9	240±19	241±18	237±13
High protein	197±10	234±26	241±14	241±23
High carbohydrate	212±15	250±16	251±14	256±18

Note: Data are presented as mean ± SD, n=6 mice/group, * means significantly different from high protein group, # means significantly different from high carbohydrate group, p<0.05.

Table 1 showed that variation in diet composition, statistically, didn't affect body weight significantly. Although the result showed that high carbohydrate diet gave higher body weight elevation compared to the other groups. And high-fat diet had the lowest effect on body weight.

Effect of Dietary Patterns to HDL Level: The level of HDL during 42 days diet administration was shown in **Table 2**.

TABLE 2: HDL LEVEL DURING 42 DAYS OF DIET ADMINISTRATION

Diet composition	HDL level at day- (mg/dl)			
	0	21	35	42
High fat	24.5 ±5.4	5.3 ±1.5*#	5.2 ±0.7*#	4.5 ±1.2*#
High protein	31 ±11.7	32.6 ±8#	34.5 ±9.6#	35.3 ±8.7#
High carbohydrate	30.7 ±9.1	4 ±0.9*	7.5 ±0.9*	10.3 ±0.9*

Note: Data are presented as mean ±SD, n=6 mice/group, * means significantly different from high protein group, # means significantly different from high carbohydrate group, p<0.05.

From **Table 2**, it could be seen that there were differences between groups treated with high fat, high protein, and high carbohydrate diet. The lowest level of HDL was shown by the high-fat group, followed by carbohydrate group, and the highest level of HDL was shown by high protein group. The HDL level was significantly different compared to each other.

Effect of Dietary Patterns to Triglyceride Level:

The level of triglyceride during 42 days diet administration was shown in **Table 3**.

TABLE 3: TRIGLYCERIDE LEVEL DURING 42 DAYS OF DIET ADMINISTRATION

Diet composition	Triglyceride level at day- (mg/dl)			
	0	21	35	42
High fat	64.1 ±20.2	106.3 ±7.2*#	92.1 ±40.5*#	103.8 ±4.6*#
High protein	81.4 ±2.5	81.2 ±4.9#	78.6 ±4.0#	82.1 ±1.3#
High carbohydrate	86.3 ±6.1	124.9 ±33.1*	141.3 ±38.8*	130.3 ±32.4*

Note: Data are presented as mean ±SD, n=6 mice/group, * means significantly different from high protein group, # means significantly different from high carbohydrate group, p<0.05.

Table 3 showed that the triglyceride level was also affected by the different composition of the diet. Different from the HDL level, the highest elevation of triglyceride level was shown by the high

TABLE 5: BLOOD PRESSURE DURING 42 DAYS DIET ADMINISTRATION

Diet composition	Sistol at day- (mmHg)				Diastol at day- (mmHg)			
	0	21	35	42	0	21	35	42
High fat	92±2	114±37*	122±29*	128±24	75±2	85±37	104±21*	109±18*
High protein	97±15	85±2	96±15	103±18	80±16	70±5	77±11	87±17
High carbohydrate	91±3	89±5	99±11	108±20	75±10	72±6	83±13	93±14

Note: Data are presented as mean ±SD, n=6 mice/group, * means significantly different from high protein group, # means significantly different from high carbohydrate group, p<0.05.

Table 5 showed that a high fat diet could significantly increase systolic and diastolic blood pressure, while the high protein and high carbohydrate diet didn't.

DISCUSSION: Body weight was one of the main parameters for metabolic syndrome¹. But from our study, the different compositions of a diet didn't affect the bodyweight significantly. These data were comparable to another study that showed that dietary intake and physical activity could lead to an improvement in metabolic profile, with or without weight loss¹³. From this study, we could see that body weight could not be used as an absolute mark whether a person had metabolic syndrome or not.

carbohydrate group, followed by high fat group, and the lowest triglyceride level was shown by high protein group.

Effect of Dietary Patterns to Fasting Blood Glucose Level:

The level of fasting blood glucose during 42 days diet administration was shown in **Table 4**.

TABLE 4: FASTING BLOOD GLUCOSE LEVEL DURING 42 DAYS OF DIET ADMINISTRATION

Diet composition	Fasting blood glucose level at day- (mg/dl)			
	0	21	35	42
High fat	88±15	106±27	124±17*	128±4*
High protein	82±14	86±19	98±25	107±15
High carbohydrate	80±6	129±26*	135±20*	129±13*

Note: Data are presented as mean ±SD, n=6 mice/group, * means significantly different from high protein group, # means significantly different from high carbohydrate group, p<0.05.

Table 4 showed a significant difference between high fat and high carbohydrate group compared to high protein group. But there was no significant difference between high-fat diet compared to high carbohydrate diet.

Effect of Dietary Patterns to Blood Pressure:

The level of fasting blood glucose during 42 days of diet administration was shown in **Table 5**.

The HDL level was most affected by the high-fat diet compared to the high carbohydrate and high protein diet. HDL is a lipoprotein that is responsible for transporting lipid from peripheral tissue to liver; in other words it responsible for anti-atherogenic activity¹⁴. The higher the HDL level, the lower the atherogenic risk. Low HDL level, along with high LDL level, could lead to coronary heart disease^{15, 16} and cerebrovascular disease¹⁷. The trans-fatty acid was strongly correlated to the reduction in HDL level¹⁴.

As for the effect on the triglyceride level, the high carbohydrate diet showed the highest elevation compared to the high fat and high protein.

Elevation in triglyceride level was directly affected by the elevation of blood glucose level (hyperglycemia) due to high carbohydrate intake. Hyperglycemia would trigger an increase in insulin requirements resulting in hyperinsulinemia. This condition would eventually cause insulin resistance. Insulin resistance would cause a decrease in the activity of the lipoprotein lipase enzyme, the enzyme responsible for triglyceride transportation to peripheral tissue. The lower the activity of the lipoprotein lipase enzyme, the higher triglyceride level in blood. Then with elevation of triglyceride level, the HDL catabolism would also increase, thus causing a decrease in HDL level^{18, 19}. It was proved by the elevation in HDL level of the high carbohydrate group.

According to the blood glucose level, the high fat and high carbohydrate diet were both had the potential to increase blood glucose level compared to the high protein diet. The mechanism of both causing an elevation in blood glucose level was not fully understood, although it was thought by affecting the insulin sensitivity^{20, 21}.

The high-fat diet was also increasing the blood pressure, while the others didn't. Although, the mechanism of fat-induced hypertension was not fully understood, but another study showed the comparable result²².

From the data above, it could be seen that different diet composition could affect different parameters of metabolic syndrome. And the metabolic syndrome symptoms were not always accompanied by weight gain or obesity. Although it might be because of the lack of time in this experiment to induce obesity. But in general, the high-fat diet and high carbohydrate diet were more responsible in metabolic syndrome symptom occurrence, while the high protein diet gave the lowest effect in metabolic syndrome.

CONCLUSION: From this experiment, it could be concluded that the lowest affecting food to metabolic syndrome was the high protein group, while the high fat and high carbohydrate food had a higher risk in induce the metabolic syndrome.

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CONFLICT OF INTEREST: The author(s) Widhya Aligita, Akbar Sumanjaya, and Ika Kurnia Sukmawati declare(s) that there is no conflict of interest regarding the publication of this article "The Influence of Dietary Composition to Metabolic Syndrome Incidence".

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