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DHANALAKSHMI SRINIVASAN UNIVERSITY

(Established Under Tamilnadu Private Universities Act, 2019)
Samayapuram, Tiruchirappalli - 621 112, Tamil Nadu, India.

INSTITUTION'S INNOVATION COUNCIL
(Ministry of Education Initiative)

'Revolutionizing Healthcare Series 01: Innovations in Smart Polymeric Drug Delivery System'

Organized by

SCHOOL OF PHARMACY

Authors:

Dr. S. Akilandeswari
Dr. S. Brito Raj
Dr. R. Sabitha
Mr. S. Sardar Khan

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About the University

The Dhanalakshmi Srinivasan University (DSU) has been established under the Tamil Nadu Private Universities Act, 2019, located in Tiruchirappali, Tamilnadu, India. Uniqueness of DSU lies in its multi-disciplinary nature in offering a wide range of academic programmes encompassing Medicine, Engineering & Technology, Allied Health Sciences, Physiotherapy, Nursing, Pharmacy, Architecture, Management and Law. Our motto is ***'Education for the Real World'*** with dedication and commitment towards nurturing the future generation. Green ambience with state-of-the-art infrastructure along with top- class faculty aims to serve the need of National and International students.

About the School

The School of Pharmacy at Dhanalakshmi Srinivasan University, established in the year 2022 in Trichy, India, is approved by the Pharmacy Council of India (PCI) and offers B.Pharm and D.Pharm programs. The curriculum includes Pharmaceutical Sciences such as Pharmaceutics, Pharmacology, Pharmacognosy and Pharmaceutical Chemistry. The experienced faculty use innovative teaching methods and are active in research. The school has state-of-the-art infrastructure, including advanced labs, computer centers, and a well-stocked library. Collaborations with leading Pharmaceutical Companies and Research Institution provide global exposure. The school emphasizes research, student projects, and aims to produce skilled Pharmacy professionals, offering a comprehensive education for successful careers in the field.

About the Conference

The One-day National Conference on ***'Revolutionizing Healthcare Series 01: Innovations in Smart Polymeric Drug Delivery System'*** is set to unite leading researchers, healthcare professionals, and industry experts to explore cutting-edge advancements in polymeric drug delivery. Featuring lectures on mucoadhesive systems, antimicrobial hydrogels, and light- activated nano systems, the conference aims to deepen understanding, foster collaboration, and shape future research directions. With Panel discussions, Technical sessions, e-Poster presentations, the event promises to be a pivotal platform for exchanging knowledge, promoting innovation, and influencing policy in the realm of smart polymeric drug delivery, ultimately aiming to enhance healthcare delivery through transformative technologies.

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Shri. A. Srinivasan,

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Assistant Professor

Mr. S. Sardar Khan,

Assistant Professor

Technical Experts

Scientific Session 1: *Mucoadhesive Drug Delivery Systems: Challenges and Opportunities*

Dr. Manju. S

Scientist E

Division of Dental Products,

Dept. Biomaterial Science and Technology,

Biomedical Technology Wing, Sree Chitra Tirunal Institute of Medical Science and Technology,

Trivandrum, Kerala - 695012.

Scientific Session 2: Nanoparticles impregnated hydrogel as antimicrobial agents and their developments

Dr. Sivakumar Muthusamy

Professor of Practice,

Department of Biotechnology,

Periyar Maniammai Institute of Science and Technology & Chief Executive Officer, Ariviya Deep Tech Pvt Ltd,

Periyar Technology Business Incubator, Vallam,

Thanjavur 613403.

Scientific Session 3: Light activated Novel Nano drug delivery systems- a futuristic view

Dr. K. Venkateshwaran

Vice Principal and HOD,

Department of Pharmaceutics,

S. A. Raja Pharmacy College,

Vadakangulam,

Tirunelveli- 627116

School of Pharmacy, DSU

REVOLUTIONIZING HEALTHCARE SERIES 01:
INNOVATIONS IN SMART POLYMERIC DRUG DELIVERY SYSTEM

Vice Chancellor
Message

Air Marshal (Dr) CK Ranjan AVSM VSM (Retd.)

Vice Chancellor

I am happy to note that the School of Pharmacy is organising a National Conference on 'Innovations in Smart Polymeric Drug Delivery System' at Dhanalakshmi Srinivasan University.

Polymeric drug delivery is used to achieve temporal or spatial control of drug delivery. Recent advances in mucoadhesive systems, antimicrobial hydrogels, light-activated nanosystems etc are planned to be discussed during the conference.

These presentations and interactions will not only enhance the knowledge of the participants but also keep them abreast with the latest developments. In turn, this will help enhance healthcare delivery and also shape future research in this field.

I wish the conference all the success.

REVOLUTIONIZING HEALTHCARE SERIES 01:
INNOVATIONS IN SMART POLYMERIC DRUG DELIVERY SYSTEM

Registrar
Message

Dr. Dhanasekaran Devaraj M.E., Ph.D

Registrar

Dear Esteemed Guests and Participants,

It is with great pleasure that I welcome you all to the National Conference on Innovations in Smart Polymeric Drug Delivery System, organized by the School of Pharmacy at Dhanalakshmi Srinivasan University. This conference is a testament to our commitment to fostering advancements in pharmaceutical sciences and providing a platform for knowledge exchange and collaboration.

Polymeric drug delivery systems have revolutionized the way we achieve temporal and spatial control in drug delivery. This conference will explore recent breakthroughs in the field, including mucoadhesive systems, antimicrobial hydrogels, and light-activated nanosystems. These innovations have the potential to significantly impact patient care and treatment outcomes.

I am confident that the discussions and presentations during this conference will inspire new ideas, stimulate innovative research, and forge lasting partnerships. I encourage all participants to actively engage, share their expertise, and take full advantage of this opportunity to learn from distinguished experts and peers.

Thank you for your participation and support. I wish you all a productive and enriching conference.

REVOLUTIONIZING HEALTHCARE SERIES 01:
INNOVATIONS IN SMART POLYMERIC DRUG DELIVERY SYSTEM

Dean
Message

Dr. S. Akilandeswari
Dean, School of Pharmacy

Dear Esteemed Participants, Distinguished Guests, and Colleagues,

With great pleasure, I welcome you to the "Revolutionizing Healthcare Series 01: Innovations in Smart Polymeric Drug Delivery System" national conference organised by the School of Pharmacy, Dhanalakshmi Srinivasan University, Trichy. Our gathering today represents a convergence of brilliant minds, cutting-edge research, and transformative ideas.

Polymeric nanoparticles have emerged as a pivotal tool in drug delivery, offering improved bioavailability and targeted therapeutic outcomes. Their versatility allows tailored solutions for specific diseases, addressing morbidity, quality of life, and mortality challenges. As we delve into discussions on Mucoadhesive Drug Delivery Systems: Challenges and Opportunities, Nanoparticles impregnated hydrogel as antimicrobial agents and their developments, Light activated Novel Nano drug delivery systems a futuristic view. Let us envision a future where these innovations redefine patient care. Together, we pave the way for healthier lives and groundbreaking advancements. I extend my heartfelt gratitude to the organizing committee, speakers, and sponsors who have made this event possible. May our collective efforts inspire breakthroughs that shape the future of healthcare.

Wishing you an enlightening and impactful conference!

DHANALAKSHMI SRINIVASAN UNIVERSITY
Tiruchirappalli – 621 112

SCHOOL OF PHARMACY

Report on One-Day National Conference on
'Revolutionizing Healthcare Series 01: Innovations in Smart Polymeric Drug Delivery System'

Date: 27th July 2024

Venue: Lecture Hall 1, Academic Block, Dhanalakshmi Srinivasan University (DSU), Trichy – 621112.

Hosted by: School of Pharmacy, Dhanalakshmi Srinivasan University (DSU)

Event Overview:

The conference began with an invocation and lamp lighting ceremony. Dr. S. Akilandeswari, Dean of the School of Pharmacy, welcomed the delegates and highlighted the significance of innovations in smart polymeric drug delivery systems. Dr. Dhanasekaran Devaraj, Honourable Registrar, delivered the felicitation speech and honoured the resource persons with mementos. The conference proceedings book with ***ISBN: 978-81-972486-4-1*** was released by Dr. Dhanasekaran Devaraj, and certificates of appreciation were awarded to the resource persons by Dr. A. Thulasi, Dean of Srinivasan Medical College and Hospital.

Participation and Competitions:

The conference saw the participation of 322 delegates, 85 E-Posters from various institutions across India. The institutions represented included:

1. Department of Pharmaceutical Technology, University College of Engineering, BIT Campus, Anna University, Trichy.
2. Crescent School of Pharmacy, B S Abdur Rahman Crescent Institute of Science and Technology, Vandalur, Chennai
3. Sri Ramachandra Institute of Higher Education and Research, Porur, Chennai.
4. Manonmaniam Sundaranar University, Thirunelveli.
5. Dr. Kalam College of Pharmacy, Avanam, Thanjavur.
6. Karpagam College of Pharmacy, Coimbatore.
7. Kamalakshi Pandurangan College of Pharmacy, Thiruvannamalai.
8. Krishna Pharmacy College, Trichy.
9. Mother Teresa College of Pharmacy, Illuppur.
10. Padmavathi College of Pharmacy, Dharmapuri.
11. PGP College of Pharmaceutical Science and Research Institute, Namakkal.
12. Sankaralingam Bhuvaneswari College of Pharmacy, Anaikuttam.
13. Shri Indra Ganesan Institute of Medical Science, College of Pharmacy, Trichy.
14. Srinivasan College of Pharmaceutical Sciences, Trichy.
15. Swamy Vivekananda College of Pharmacy, Tiruchengode.
16. Thanthai Roever College of Pharmacy, Perambalur.
17. School of Engineering and Technology, DSU, Trichy.
18. School of Allied Health Sciences, DSU, Trichy.
19. School of Pharmacy, Dhanalakshmi Srinivasan University, Trichy.

DHANALAKSHMI SRINIVASAN UNIVERSITY

Tiruchirappalli – 621 112

SCHOOL OF PHARMACY

Report on One-Day National Conference on
'Revolutionizing Healthcare Series 01: Innovations in Smart Polymeric Drug Delivery System'

Inaugural Ceremony


Felicitating Chief guest and Resource person


Felicitating the Resource Persons


DHANALAKSHMI SRINIVASAN UNIVERSITY

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Report on One-Day National Conference on
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Launching of Conference Proceedings Book

ISBN: 978-81-972486-4-1

Welcome Address by Dean

Felicitation Speech by Registrar

DHANALAKSHMI SRINIVASAN UNIVERSITY
Tiruchirappalli – 621 112

SCHOOL OF PHARMACY

Report on One-Day National Conference on
'Revolutionizing Healthcare Series 01: Innovations in Smart Polymeric Drug Delivery System'

TECHNICAL SESSIONS

Technical Session I:
"Mucoadhesive Drug Delivery Systems: Challenges and Opportunities"

Speaker: ***Dr. Manju S, Scientist E,***
Sree Chitra Tirunal Institute of Medical Science and Technology, Kerala.

Technical Session II
"Nanoparticles Impregnated Hydrogel as Antimicrobial Agents and Their Developments"

Speaker: ***Dr. Sivakumar Muthusamy,***
Professor of Practice, Department of Biotechnology, Periyar Maniammai Institute of Science and Technology & CEO, Ariviya Deep Tech Pvt Ltd, Thanjavur.

Technical Session III
"Light Activated Novel Nano Drug Delivery Systems - A Futuristic View"

Speaker: ***Dr. K. Venkateshwaran,***
Vice Principal and HOD, Department of Pharmaceutics, S. A. Raja Pharmacy College, Tirunelveli.

DHANALAKSHMI SRINIVASAN UNIVERSITY

Tiruchirappalli – 621 112

SCHOOL OF PHARMACY

Report on One-Day National Conference on

'Revolutionizing Healthcare Series 01: Innovations in Smart Polymeric Drug Delivery System'

E-POSTER PRESENTATION




COMPLIMENTING THE JUDGES OF E-POSTER




DHANALAKSHMI SRINIVASAN UNIVERSITY

Tiruchirappalli – 621 112

SCHOOL OF PHARMACY

Report on One-Day National Conference on
'Revolutionizing Healthcare Series 01: Innovations in Smart Polymeric Drug Delivery System'

BEST OUTSTANDING RESEARCH PAPER AWARDEES

1st Prize (₹5000)

M. Pavithra,
Sri Ramachandra Institute of Higher Education and Research, Porur, Chennai
Title: *Development and evaluation of curcumin-coated non-absorbable suture material for reduction of bacterial load: in-vitro assessment*

2nd Prize (₹3000)

A. Shobana,
Thanthai Roever College of Pharmacy, Perambalur.
Title: *Exploring the non-alcoholic fatty liver disease mechanism of Nigella sativum by molecular docking studies*

3rd Prize (₹2000)

S. R. Nivetha,
Research Scholar
School of Pharmacy, DSU, Trichy.
Title: *Pharmaceutical management and patient education in post-menopausal women after total laparoscopic hysterectomy*

DHANALAKSHMI SRINIVASAN UNIVERSITY
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SCHOOL OF PHARMACY

Report on One-Day National Conference on
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VALEDICTORY

Dr. A. Thulasi, Dean of the School of Medicine, and Dr. S. Akilandeswari, Dean of the School of Pharmacy, attended the valedictory function. Dr. Thulasi also honoured the judging panel for the E-Posters. The Best E-Poster Awards and Best Outstanding Research Paper Awards were presented by Dr. A. Thulasi and Dr. S. Akilandeswari.

E-Poster Competition:

- **85 participants presented their E-Posters.**
- **The top five were awarded as Best E-Poster Awardees**
- **Top Three Papers are awarded as Best Outstanding Research Paper Awardees with cash Prize.**

Best E-Poster Awardees:

1. Vignesh E, Kamalakshi Pandurangan College of Pharmacy, Kanchipuram.
2. Aksaya J, Srinivasan College of Pharmaceutical Sciences, Trichy.
3. Aarthy Ramu, Kalam College of Pharmacy, Thanjavur.
4. Abhishek, Srinivasan College of Pharmaceutical Sciences, Trichy.
5. Kanishka V, Swamy Vivekananda College of Pharmacy, Tiruchengode.

Best Outstanding Research Paper Awardees:

Cash Prize Winners with Certificate:

1. 1st Prize (₹5000): M. Pavithra, Sri Ramachandra Institute of Higher Education and Research, Porur, Chennai
2. 2nd Prize (₹3000): A. Shobana, Thanthai Roever College of Pharmacy, Perambalur.
3. 3rd Prize (₹2000): S. R. Nivetha, School of Pharmacy, DSU, Trichy.

Vote of Thanks

Dr. S. Brito Raj, Professor and Convenor, delivered the vote of thanks, expressing gratitude to all participants and contributors. The conference concluded with the National Anthem, marking the end of a day filled with knowledge-sharing and innovative discussions.

DHANALAKSHMI SRINIVASAN UNIVERSITY

Tiruchirappalli – 621 112

SCHOOL OF PHARMACY

Report on One-Day National Conference on
'Revolutionizing Healthcare Series 01: Innovations in Smart Polymeric Drug Delivery System'

VOTE OF THANKS

The conference concluded with the National Anthem, marking the end of a day filled with knowledge-sharing and innovative discussions.

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RHS-001

Green Synthesis of Silver Nanoparticles Derived from *Anisomeles Malabarica* Extract and Its Anti-Cancer Activity

Shaheedha S.M [a] *, Hemalatha. S [b]

[a] Crescent School of Pharmacy, B.S. Abdur Rahman Crescent Institute of Science and Technology, Vandalur, Chennai 600048

[b] Faculty of Pharmacy, Sri Ramachandra Institute of Higher Education and Research, Porur, Chennai.

ABSTRACT:

Aim: The present work is aimed to green synthesize silver nanoparticles from *Anisomeles malabarica* and to evaluate anticancer activity for the same.

Methodology: At room temperature, silver nanoparticles (AgNPs) were synthesized utilizing *Anisomeles malabarica* extract. The synthesized AgNPs was characterized by UV- VIS, FTIR, ZETA POTENTIAL, TEM, XRD. It was then evaluated for anticancer activity against the DU145 cell line.

Results: The synthesis of AgNPs was affluent as indicated by a Surface Plasmon Resonance (SPR) peak that appeared at 415 nm. These nanoparticles demonstrated stability for over three months and were found to be spherical in shape, as confirmed by HR-TEM. The particle size was determined to be 22.15 ± 0.43 nm. The in-vitro cytotoxicity activity results of the samples significantly inhibited the growth of cancer cells which were analyzed in different concentrations (512, 256, 128, 64, 32, 16, 8, 4, 2, 1µG/ml) against DU145 cell line.

Conclusion: An increase in the sample concentrations showed a high increment of cytotoxicity and it was clearly observed in the results (Table 1). It was evident that the samples tested as high as 512 µg/ml showed high cytotoxicity activity as high as 18.23% against DU145 cancer cell lines, respectively. It was proven that the high cytotoxicity effect of the test sample showed cell disintegration after 24h of treatment against the selected tested cell line even at lower concentrations. The IC50 calculated for sample was 53.28 µg/ml.

Keywords: Silver nanoparticles, *Anisomeles malabarica*, anticancer

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RHS-002

Differential Pharmacokinetic Interplay of Atorvastatin on Experimental Convulsions in Mice

R. Prakash*[a], M. Vijaya Vara Prasad [a]

*[a] Crescent School of Pharmacy, B.S. Abdur Rahman Crescent Institute of Science and Technology, Vandalur, Chennai 600048

ABSTRACT:

Background: The beneficial effects of statins, other than their hypocholesterolemia role, have been well documented, however, their use as an adjuvant drug with other antiseizure drugs, in the treatment of epilepsy is poorly understood.

Aim: This study aimed to investigate the symbiotic effect of on experimentally induced epilepsy (Maximal electro-shock-MES or pentylenetetrazol- PTZ) in mice models. Methods: Conventional elevated-maze (EPM) and rotarod methods were performed to observe the behavioral effects.

Results: In both the animal models, we found administration of ATOR showed a significant reduction in hind-limb extension (HLE) and clonic convulsion (CC) responses. Intriguingly, comparable Straub tail response and myoclonic convulsion as the diazepam (DIA) group were observed only in the ATOR group. Moreover, a significant muscle-grip strength was observed in both groups. Also, pharmacokinetic analysis has indicated that the mean plasma concentration of ATOR peaked at 2nd hr. An in silico study has revealed that ATOR has a higher binding affinity toward neuronal sodium channels.

Conclusion: This study has demonstrated that the plasma concentration of ATOR significant protection against both the electro and chemo-convulsive models in mice. This could be due to the symbiotic pharmacokinetic interplay of ATOR and possibly, this interplay may interfere with sodium channel conductance.

Keywords: Atorvastatin; Epilepsy; Pentylenetetrazol; Pharmacokinetics**.**

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RHS-003

Evaluation of Analgesic Activity of *Lagerstroemia Speciosa* on Swiss Albino Mice and Wister Rats

Sandeep Reddy Cheruku[*a], S. M Shaheedha [a], M. Vijaya Vara Prasad [a], Arunabha Mallik [b], Gopi Krishna [b], Nikhil Prashant [b]

[a] Crescent School of Pharmacy, B S Abdur Rahman Crescent Institute of Science and Technology, Vandalur, Chennai.

[b] Marri Laxman Reddy Institute of Pharmacy, Dundigal (V and M), Hyderabad, Telangana.

ABSTRACT:

The ethanolic crude extract of *Lagerstroemia speciosa* leaves was investigated for its possible analgesic activities in experimental animal model. Phytochemical screening of the ethanolic extract of *L. speciosa* leaves showed the presence of alkaloids, carbohydrates, glycosides, saponins, terpenoids, steroids, phenols, protein and amino acids, flavonoids. In acute toxicity study, no mortality or toxic reaction was recorded in animal model after administration of the *L. speciosa* leaves extract. Analgesic activity was evaluated by using hot plate method and tail immersion method in Swiss albino mice and Wister rats. In anti-nociception, the ethanolic crude extract of L. *speciosa* leaves showed significant analgesic activity. At the dose of 200 and 400 mg/kg body weight, the extract produced 4.1±0.41 and 7.2±0.44 paw licking or jumping in seconds ($P < 0.01$) at 120 minute on compared to control in hot plate method and tail immersion method respectively where in standard Pentazocine (3 mg/kg) shows 9.9±0.34 in 120 minutes.

Keywords: *Lagerstroemia Speciosa*, Analgesic, Writhing, Castor Oil, Swiss albino mice, Wister rats.

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RHS-004

Pharmaceutical Management and Patient Education in Post-Menopausal Women After Total Laparoscopic Hysterectomy

Nivetha S R[a] *, Sabitha R[b], D. Kumarasamyraja[b], G. Arunachalam[b]

[a] School of Pharmacy, Dhanalakshmi Srinivasan University, , Trichy.

[b] PGP College of Pharmaceutical Sciences and Research Institute, Namakkal.

ABSTRACT:

Aim: This case report aims to discuss about the pharmaceutical care of a post- menopausal women after total laparoscopic hysterectomy with right salphingoophrectomy.

Objective: To evaluate and illustrate the pharmaceutical care strategies implemented for a post-menopausal woman following a total laparoscopic hysterectomy with right salpingo-oophorectomy

Methodology: Single client case study

Case report: A 59 years old female patient was admitted with chief complaints of post- menopausal bleeding on & off for 8 months. Her vitals were normal. CECT report suggests bulky uterus with enlarged right ovary. Later she was planned for total laparoscopic hysterectomy with right salphingoophrectomy (TLH+ RSO). By laparoscopic method, colpotomy was done and specimen of TLH+ RSO removed transvaginally. The patient withstood the procedure well and shifted to SICU. Patient is being discharged in stable condition.

Discussion: Total Laparoscopic Hysterectomy (TLH) is a cutting-edge gynaecological laparoscopic procedure that is extensively practiced. The pharmaceutical care plan emphasis on post-operative management by administration of IV Fluids, Inj. Oframac forte 1.5gm, Inj. Amikacin 500mg, Inj. Pan 40 mg, Inj. Tramadol 50 mg, Inj. Emeset 2cc, Inj. Ketoralac 1cc, Inj. TT, Inj. Xylo intravenously during hospitalization. Follow-up visits are scheduled to monitor her progress and address any post-surgical concerns.

Conclusion: In conclusion, TLH is an ideal approach to hysterectomy, there is good evidence that it can be done safely. The pharmaceutical care plan is comprehensive and aims to support the patient in pain management, pain recovery and overall well-being of the patient.

Keywords: Total laparoscopic hysterectomy, salphingoophrectomy, pharmaceutical care.

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RHS-005

Anti-Microbial and Antioxidant Screening of *Aerva Lanata Linn.*

K. Dhanalakshmi*[a] , G. Keerthana[a]

[a] Department of Pharmaceutical Chemistry, Manonmaniam Sundaranar University, Tirunelveli, Tamil Nadu, India.

ABSTRACT:

Aim: *Aerva lanata* (Linn) is a medicinal plant belonging to the Amaranthaceae family. It is widely spread in the drier parts of the tropics and the sub-tropical part of the world. Alkaloids, terpenoids, sterols, several flavonoid, glycosides and polyphenols had been isolated due to its medicinal use. Extensive research from the last decades has revealed the applications of *Aerva lanata* (Linn). In this context an attempt was made to analyze preliminary phytochemical content, antimicrobial and antioxidant potential of medicinal plant, Aerva lanata (Linn.).

Methodology: The whole plant were extracted using various solvent such as, ethanol, chloroform, petroleum ether and water. From the phytochemical analysis out of thirteen qualitative tests screened for the presence of secondary metabolites, ten showed positive results in the ethanol extract. Therefore, the ethanol extract was further proceeded for biological activity (Antioxidant and Antimicrobial activity). The antioxidant activity was done by Hydrogen peroxide assay method; antimicrobial activities was determined by employing disc diffusion method.

Results: The ethanol extract exhibited the significantly strongest free radical scavenging activity. Therefore, *A. lanata* extract can serve as a natural antioxidant source, which could be further applied in nutraceuticals and pharmaceutical production. Then ethanolic extract of *A. lanata* revealed the high degree of antibacterial activity against *S. Aureus* (12mm).

Conclusion: The results of present finding strongly indicate the importance of traditional medicine and this plant extract could serve as very useful source for novel antibacterial substances and antioxidant components.

Keywords:

Aerva Lanata Linn, Antioxidant activity, antimicrobial activity, Traditional medicine.

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RHS-006

Invitro and *Insilico* Approaches on Blood Coagulation Activity in The Leaves of *Tridax Procumbens* Using Platelet Rich Plasma.

Kashif Ahamed S [a*], *Thirumal M* [b],

[a] *School of Pharmacy, Dhanalakshmi Srinivasan University, Samayapuram, Trichy.*

[b] *SRM College of Pharmacy Kattankulathur, Chengalpattu.*

ABSTRACT:

Aim:

The main aim of the study is to identify and evaluate the *Invitro* blood coagulation activity of the polyherbal extract in the leaves of *Tridax procumbens* using ethanol.

Methodology:

Phytochemical studies: Polyherbal extraction of *Tridax procumbens* by Soxhlet-Type extraction using ethanol as solvent which includes preliminary phytochemical screening.

Pharmacological studies: *In-silico* molecular docking for coagulation activity. *Invitro* Haemostatic activity which includes the preparation of platelet-rich plasma (PRP) and platelet-poor plasma (PPP) followed by Evaluation of percentage inhibition of coagulation in different concentrations of drug is performed.

Results:

Based on molecular docking, we have found that the seven molecules with good binding interactions are very interesting in the chemical side and biological side. The *Invitro h*aemostatic activity was tested using ethanolic extracts and the result is very satisfactory when compared with the standard which shows greater percentage inhibition in the blood samples in the above experiments.

Conclusion:

Tridax procumbens was already proved for numerous pharmacological activities including wound healing, blood coagulation and haemostatic activity.

Keywords:

Tridax procumbens, haemostatic activity, phytochemical studies.

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RHS-007

Development of Artificial Titanium Heart – A Review

Pugalesh M*[a], Mariyammal R[a], Nepolean R[a], Sathya A[a], Helina N[a]

[a] *Thanthai Roever College of Pharmacy, Perambalur*

ABSTRACT:

Aim:

This study aims to advance the development of artificial titanium hearts by integrating virtual fitting and evaluating biocompatibility improvements for enhanced long-term implantation success in heart transplant recipients.

Methodology:

To identify publications about titanium artificial hearts, we used the following search phrases in ScienceDirect, Google Scholar, and PubMed: “Heart transplant biocompatibility” and “Titanium artificial heart”. The project included a search on the development and testing of titanium hearts, including human recipients of heart transplants, as well as processes for inserting prototypes for evaluations of virtual fitting using CT scans or anatomical fitting. The results were published in English-language journals. To choose relevant investigations, publications were sorted by title and abstract. The final judgment contained findings demonstrating advances in titanium biocompatibility for long-term implantation since the initial screening.

Result:

The morphological, *invivo* characteristics and blood flow rate of artificial titanium heart of all the enrolled patients were studied. All the patients had a normal chest wall appearance at surgery and free of deformity. Based on the positive outcomes of the in vivo testing, efforts were made to improve the biocompatibility of titanium for long-term implantation.

Conclusion:

It is hoped that an artificial heart will be able to replace the patient's heart entirely and provide hope to millions of people who are either waiting for a heart transplant or are not suitable candidates for one, benefiting scientists and physicians.

Keywords:

Titanium, Artificial heart, Heart transplant, Biocompatibility, CT scan.

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RHS-008

Isolation of Microbial Pigments & Molecular Characterization of Garden Soil

Nandhini. A*[a], A.S. William Arputha Sundar[a]

[a] *Swamy Vivekanandha College of Pharmacy, Elayampalayam, Tiruchengode*

ABSTRACT:

Aim:

The current study aims to discover novel natural colorants such as microbial colorants which were safer and better than synthetic colorants.

Methodology:

The specimen used here was Garden soil and it has been collected from four different locations. Tenfold serial dilution method was carried out for all the four soils (SE1, SN2, SY3, SK4). The soil sample dilution was spread throughout the Petri plate by spread plate method. The organism are well grown in SE1 10^{-8}, SE1 10^{-10} and SK4 10 -4 samples and those samples produces yellow colour pigment which was isolated. Molecular characterization was done by using 16SrRNA Sequencing techniques & the sequence was submitted in the Gen bank and a Phylogenetic tree was constructed.

Results:

The strains were taken for genetic analysis and was found to be *Bacillus pseudomycoides* strain ASW5, *Bacillus cereus* strain ASW6 and were deposited on the Gen bank with accession number OQ344663 for ASW5, OQ344664 for ASW6.

Conclusion:

Many pigmented secondary metabolites of the microorganisms have significant potential clinical applications and many research works are going on for treating many diseases like leukaemia, and many inflammatory diseases.

Keywords:

Pigment, Molecular characterization, Gen bank.

ISBN:978-81-972486-4-1

RHS-009

Innovative Liqui-Mass Technology for Sustained Release Liqui-Tablets From Liqui-Pellets

Nithya L*[a], Senthilrajan [a]

[a] *Swamy Vivekanandha College of Pharmacy, Elayampalayam, Tiruchengode*

ABSTRACT:

Aim:

The main aim of study is to develop sustained release liqui -tablet to evaluate the effectiveness of different non-volatile co-solvent in sustaining drug release to improved therapeutic outcomes.

Methodology:

The sustained-release Liqui-Tablets were developed using a method. Initially, various formulations were made with propranolol hydrochloride, Eudragit RS PO as a retardant, and non-volatile co-solvents (Tween 80, Tween 20, and Kolliphor EL). The carrier-to-coating material ratio was kept constant at 20:1. Extrusion and spheronization were used to combine the active ingredient and excipients and turn them into pellets. The study evaluated the drug release profile at pH 1.2 and pH 7.4, using in vitro dissolution tests and kinetic analysis. The Liqui-Tablet's physical and chemical stability were assessed over time under different storage conditions. Flowability and particle size distribution were analysed using a sieve method. Friability and hardness tests were conducted to assess the tablet's robustness.

Results:

The study confirmed that Liqui-Mass technology is effective for creating sustained-release drug formulations, as the Liqui-Tablets successfully released almost 100% of propranolol hydrochloride over 24 hours, with similar solubility profiles and a diffusion-controlled release mechanism. The tablets were stable, had good flowability, and passed the friability test.

Conclusion:

The sustained-release dose forms made with Liqui-Mass technology have the potential to increase therapeutic benefits and enhance patient outcomes.

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RHS-010

Development and Evaluation of Herbal Hair Gel Containing Aloe Vera and Flaxseed

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ABSTRACT:

AIM:

To formulate and evaluate herbal hair gel using Flaxseed (*Linum usitatissimum*) and Aloe Vera extracts to control hair fall and treat dandruff. The study also focused on assessing the stability and efficacy of the gel as a natural alternative to chemical hair products.

METHODOLOGY:

The methodology comprised gathering and verifying Aloe Vera and Flaxseed, then preparing their extracts by boiling and draining. Different concentrations of these extracts were used to create five different herbal hair gel formulations. Other ingredients, such as Glycerin and Methylparaben, Carbopol, PEG, and Triethanolamine were combined and neutralized to form a transparent gel. After that, the gels color, pH, viscosity, and antifungal activity against *Candida albicans* were assessed. The optimized formulation was then subjected to stability testing for six months in order to monitor any changes in key parameters.

RESULTS:

The study found that herbal hair gel formulations with Flaxseed and Aloe Vera effectively control hair fall and reduce dandruff, with Formulation F4 being the most stable over six months, maintaining appearance, pH, viscosity, and antifungal activity against *Candida albicans*.

CONCLUSION:

The Aloe Vera and Flaxseed-based herbal hair gel significantly decreased dandruff and hair loss and formulation F4 showed the best stability and antifungal activity over a six-month period.

Keywords:

Flaxseed, Aloe Vera, Herbal

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RHS-011

An Innovative Technique for Solubility Improvement of Poorly Water Soluble Drug with Locust Bean Gum

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ABSTRACT:

Aim: To enhance the solubility of poorly water soluble drug Ibuprofen by using Locust bean gum and the objective of this research was to formulate Ibuprofen using Locust bean gum to enhance its dissolution rate and solubility.

Methodology: Tablets were prepared by using wet granulation technique. The required quantity of ingredients were mixed and dried and sieved. The resultant granules were compressed into tablets by using Tablet press FROGERAIS OA eccentric machines.

Formulation 1 – Ibuprofen Conventional Plain

Formulation 2 – Ibuprofen Conventional with Locust Bean Gum (LBG)

Formulation 3 – Ibuprofen Conventional with Modified Locust Bean Gum (MLBG)

Formulation 4 – Ibuprofen Conventional By Liquisolid Compact Technique (LSC)

The dissolution studies of the ibuprofen tablet formulations were performed using USP dissolution testing apparatus II (paddle type). The cumulative % drug release was calculated.

The rates of the drug released were determined.

Results: Therefore, among all the formulations (F1, F2, F3, F4) the F3 was used to increase the solubility of the poorly water soluble drug Ibuprofen.

Conclusion: The comparative study with Ibuprofen conventional tablet prepared by liquid solid compact method and that using Locust bean gum formulations (F1, F2, F3, F4) revealed that among these F3 shows highest drug release [85%] within 30 minutes and used for solubility enhancement of Ibuprofen by using Locust bean gum and thereby increase dissolution rate and time.

Keywords:

Locust bean gum, solubility enhancement, dissolution rate enhancement.

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RHS-012

Development And Comparative Evaluation Of Ellagic Acid Using Anti-Oxidant Activities

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ABSTRACT:

Aim: To develop the topical formulation of Ellagic acid (EA) for increasing the solubility using two different technologies like chitosan/alginate -Ellagic acid encapsulation and Inclusion complex of EA with hydroxyl propyl β-cyclodextrin . To evaluate and compare its impact on anti-oxidant activities using in-vitro assays.

Methodology:

Of the proposed technologies, Chitosan/Alginate encapsulation and Cyclodextrin inclusion complexation (EA-HP-β-CD) were selected to formulate Ellagic acid. The nanoparticles of EA in the EA-HP-β-CD inclusion complex and EA-Chitosan nanosuspension was analysed using a Globolytics Nanoparticle analyser. In-vitro antioxidant assays were performed using the three different formulations of ellagic acid.

Results: Solubility analysis results revealed the percentage of dissolved drug in EA-chitosan nanosuspension was 4 times higher than plain EA respectively.

Conclusion: This study provides a great potential to utilize topical nanosuspension as the effective formulation strategy for drugs with solubility as the rate-limiting step to absorption from the topical application. The Results showed that nanocrystal suspension represented a new and promising formulation for topical administration of Ellagic acid.

Keywords:

Ellagic acid, Chitosan, Sodium Alginate, Hydroxyl amine hydrochloride.

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RHS-013

Isolation, Production and Pharmacological Activity Of Microbial Pigments From Garden Soil

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ABSTRACT:

Aim: The current study aims to screen and isolate the pigment producing microorganisms from soil to investigate different cultural and environmental parameters for the maximum pigment production and to find potential pharmaceutical applications.

Methodology: Inoculate the isolated yellow pigment producing microorganisms from SE1 10^{-10} , SK4 10^{-4} into peptone water for further growth. The isolated pigments was kept in the orbitek shaker after 24 hrs of incubation. The same process was repeated for 7 days. The microbial pigment was carried out by extraction method (both intracellular and extracellular). The preliminary characterization of pigment was analysed by UV and FTIR. Pharmacological activities such as Antioxidant and Anti-arthritic activity was carried out.

Results: In UV-visible spectroscopy, the maximum absorbance of the pigment was found to be 303nm. To find the functional group present in the microbial pigments by using FTIR. Sample SK4 10^{-4} showed the maximum antioxidant activity (42.30%) at 200µg/ml. The SE1 10^{-10} should maximum potential (66.60%) at 40µg/ml. The anti-arthritic activity was found to be 90.9% for SE1 10^{-10} and 54.5% for SK4 10^{-4} .

Conclusion: There is a vast scope for these microbial pigments and many research works are being carried out to explore the potential of these microbial pigments. The obtained pigments was used in pharmaceutical excipients in tablet coating and syrup formulation.

Keywords:

Soil, Microbial pigment, Pharmacological activities.

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RHS-014

Formulation and Characterization of Liposomal Drug Delivery System of Frusemide

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ABSTRACT:

Aim:

The aim of this study is to enhance the solubility, stability and bioavailability of frusemide through the formulation of a liposomal drug delivery system, ultimately improving its therapeutic efficacy.

Objective:

To address inherent issues associated with conventional furosemide dosage forms, such as nephrotoxicity and frequent dosing, by formulating liposomal furosemide to: Reduce the Dose and Dose Frequency, Minimize Side Effects, Prolong Drug Action, Provide Sustained Drug Release and Enhance Patient Compliance.

Methodology:

The liposomal drug delivery system for frusemide was formulated using the rotary evaporation method. To preserve their stability, the created liposomes were lyophilized. Then the encapsulated liposome was characterized for measurement of particle size, Measurement of Zeta potential, Determination of entrapment efficiency, Scanning electron microscopy, Drug content and In-vitro drug release study.

Results:

The study's findings indicate that frusemide encapsulated liposomes release the medication for a longer period of time.

Conclusion:

These findings indicate that the liposomal drug delivery system has the potential to markedly enhance the therapeutic effectiveness of frusemide by improving its solubility, absorption and bioavailability. Additional in vivo investigations are needed to confirm the clinical applicability of this formulation.

Keywords: Frusemide, Liposome, Anti-diuretic drugs

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RHS-015

Liposomes: The Nanocarrier of Choice in Precision Medicine

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ABSTRACT:

Aim:

The aim of this review is to highlight the unique properties and versatility of liposomes that make them a preferred nanocarrier platform for precision medicine applications.

Objective: To systematically evaluate and summarize the role of liposomes as advanced drug delivery systems in the context of precision medicine. Analysing the unique properties of liposomes, Exploring recent advancements in liposomal formulations, Identifying challenges and future directions in liposome research.

Methodology: The review covers the following key aspects of liposomes in precision medicine,

1. Size, structure and composition of liposome
2. Types, Advantages and Disadvantages of liposome
3. Properties and application of liposome
4. Preparation of liposome
5. Marketed liposome
6. Evaluation studies for liposomal preparation.

Conclusion:

Liposomes represent a promising platform for drug delivery in precision medicine, combining their ability to enhance drug efficacy with targeted delivery and controlled release mechanisms.

Keywords: Liposome, Novel Carrier, Applications

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RHS-016

Synthesis and Antimicrobial Evaluation of Some New Substituted Thiazole Derivatives

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ABSTRACT:

Aim:

This study aimed to synthesize a series of substituted N-{4-[(4-phenyl- 1,3-thiazol-2-yl) sulfamoyl]phenyl} acetamide derivatives, Characterize the newly synthesized compounds, and evaluate their antibacterial And antifungal activities.

Methodology:

The substituted 4-phenyl 2-amino thiazole and substituted 4- acetamide phenyl sulphonyl chloride in the presence of pyridine and acetic acid. The compounds were hydrolysed using 80% acetic acid. The compounds are characterized by using IR, H-NMR, mass spectroscopy and Elemental Analysis. The Antimicrobial activities of the compounds were assessed by cup-plated method.

Results:

The synthesis yielded a series of substituted N-{4-[(4-Phenyl-1,3-thiazol- 2-yl)sulfamoyl]phenyl} acetamide derivatives. The compounds were successfully characterized by IR, H-NMR, Mass spectroscopy, Elemental Analysis, confirming their structures.

Conclusion:

The synthesized compounds exhibited varying degrees of anti-bacterial and anti-fungal activities. The zone of inhibition measurements indicated that some compound has significant antimicrobial effects

Keywords: Thiazole, Antibacterial activity, Antifungal activity, Disc diffusion method

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RHS-017

Urolithiasis Activity of An Entire Plant of *Scoparia Dulcis* from The Pharmacognostical, Pharmacological and Phytochemical Screening

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ABSTRACT:

Aim:

To evaluate the urolithiatic activity of *scorparia dulcis* and the phytochemical screening.

Methodology:

The extracts are preparations of liquid consistency or semisolid, or solid obtained from plant drug or animal tissues on generally dry states. Plant collection and Preparation of extract. The various studies are macroscopical and microscopical studies. The phytochemical investigation like Carbohydrate, Saponins, Steroids, Glycosides, Flavonoids, Alkaloids, Tannins and Phenolic compounds. The invitro struvite inhibition, formation of struvite stone, aggregation assay and nucleation assay. The various analytical studies as GC/MS, UV Spectroscopy, Spectro fluorophotometer and molecular docking.

Results:

The macroscopy was carried out to determine the nature of the plant. The microscopical characters were presented in the transverse section of stem, leaf, root of vascular bundles, endodermis, medullary rays, collenchyma, xylem, phloem, stomata, starch grain. The 1:4 ratio of ethanolic extract. The chemical constituents are presented in the Glycoside, Flavonoids, Alkaloids, Quinones, Tannins, Terpenoids, Phenol, and Phlobatannins. Struvite is one of the most common urinary/kidney stones, composed of magnesium ammonium phosphate. Cystone tablet is used as standard in aggregation assay. Cystone tablet is used as standard in nucleation assay. GC/MS method is used qualitative identification quantitative measurement of individual components in complex mixture.

Conclusion:

The microscopy, and macroscopy study of physical constant of the plant *Scoparia dulcis* were performed. The data found in the studies have not reported earlier. In conclusion, the present finding in our study indicates that *scoparia dulcis* possesses antiurolithiatic activity.

Keywords: Urolithiatic activity, *Scorparia dulcis* and Phytochemical screening

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RHS-018

Invitro Naso Gastric Tube Study of Risperidone Oral Suspension

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ABSTRACT:

Aim: To perform an Invitro Naso Gastric tube study for Risperidone oral suspension solution.

Objective: Evaluate the efficacy and safety of administering Risperidone oral suspension through a nasogastric tube in patients

Methodology: Twelve units of RLD and in-house samples assay were performed for recovery test before and after administering through NG tube. Sedimentation volume and re-dispersibility tests were carried out filling the syringe with the product along with the dispersion medium kept on the bench top upto the holding time mentioned in the label. Testing for in-use stability of the drug product dispersion under proposed storage conditions for enteral tube administration should be monitored at predetermined time intervals was carried out using RLD and 12 units of an internal sample. Particle size at the D10, D50, and D90 determined before and after passing through the NG tube.

Results: The % RSD results for recovery test found within 2% and recovery found within 80-120%. Sedimentation volume found 2 ml and redispersibility test no evidence of shows settled solids. In use stability results found within the limit. Particle size at D10, D50 and D90 comparable with RLD samples. Cumulative dissolved percentage Q>80% for all samples. T/R ratio found 0.92 shows the equivalent with RLD sample. Visual inspection revealed no significant residue or clogging in the NG tubes post-administration.

Keywords: Risperidone, Oral Suspension, Nasogastric tube.

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RHS-019

Analysis Of ICH-Q3D Elemental Impurities in Calcium Channel Blocker Amlodipine By ICP-MS (Ked Mode)

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ABSTRACT:

Aim: This study aimed to develop and validate an ICP-MS method for the precise estimation of elemental impurities in Amlodipine API.

Objective: The objective was to adhere to ICH Q2R1 and Q3D guidelines in developing an analytical method for elemental impurities using ICP-MS, suitable for routine analysis in quality control laboratories.

Methodology: Method development included assessing linearity, accuracy, precision, LOD, LOQ, and ruggedness following ICHQ2R1 guidelines. Linearity was evaluated by preparing standard solutions from LOQ to 200%. Precision was determined by analysing six individual samples, and recovery was tested by spiking standards into test samples. LOD and LOQ were established at 25% of specification limits, and specificity was confirmed by analysing sample and calibration blanks. Ruggedness was evaluated to ensure method robustness.

Result: The method exhibited excellent linearity with correlation coefficients (R^2) ranging from 0.9994 to 1.000 across twenty-three elements. Precision (% RSD) was consistently below 20%, indicating high repeatability. Average recovery ranged from 88.70% to 104.94%, meeting method validation criteria. LOD and LOQ values were determined at satisfactory levels, and specificity was confirmed by negligible blank values. Ruggedness testing demonstrated consistency within a 25% RSD threshold.

Conclusion: The developed ICP-MS method is sensitive, selective, precise, and accurate for detecting elemental impurities in Amlodipine API. It adheres to ICH guidelines and USP 233, providing an effective alternative for routine quality control analysis of trace elemental impurities in pharmaceutical preparations.

Keywords: Analysis , ICH-Q3D Elemental Impurities, Calcium Channel Blocker, Amlodipine , ICP-MS

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RHS-020

Molecular Docking Studies of Phytochemicals of *Caralluma Adscendens* Against Cyclooxygenase-2 Enzyme

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ABSTRACT:

Aim: The present study aims to screen the phytochemicals present in the plant extract of *Caralluma adscendens* by GC-MS analysis and to identify potential leading compound of the *C. adscendens* extract against cyclooxygenases-2, protein target involved in the inflammation by carrying out molecular docking studies.

Objective: To identify phytochemical compounds that have anti-inflammatory properties from the plant extracts of *C. adscendens* and to search for COX-2 enzyme inhibitors through molecular docking.

Methodology: From the GC-MC analysis of this plant, various phytochemicals were identified. About 10 of these phytochemical compounds were analyzed for their drug likeliness based on Lipinski's rule of five and inhibitor properties against the COX-2, enzyme, and protein responsible for inflammation. The compounds which satisfy Lipinski's rule such as 1H-Benzocycloheptane,2,4a,5,6,7,8-hexahydro-3,5,5,9-tetramethyl and sulfurous acid, dipentyl ester where subjected to docking experiments using Auto Dock vina. The result from the molecular docking study revealed that 1H-Benzocycloheptane,2,4a,5,6,7,8-hexahydro-3,5,5,9-tetramethyl and sulfurous acid, dipentyl ester and 1,2-Benzenedicarboxylic acid, bis(2-methylpropyl) ester bind effectively to the active site region of COX-2 with a binding energy of -8.9, -8.4, and -7.9, respectively. The binding energy of the Phyto-compounds were compared with the known anti-inflammatory drug Diclofenac that inhibits theCOX-2 enzyme.

Results: It was found that the phytochemical compounds from plant extract of *Caralluma adscendens* have strong inhibitory effect on COX-2 enzyme and as a result they have potential anti-inflammatory medicinal values.

Conclusion: Thus, the study puts forth experimental validation for traditional antidotes and this Phyto-compounds could be further promoted as potential lead molecule.

Keywords: Anti-inflammatory, Phyto-compounds, *Caralluma adscendens,* molecular docking, COX-enzyme.

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RHS-021

Polyphenols In Tea and Coffee: Implications For Iron Absorption And Anaemia

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ABSTRACT:

Aim: This comprehensive review aims to examine and consolidate current knowledge on how the consumption of tea and coffee influences iron absorption and contributes to iron deficiency anemia.

Objective: To critically analyze recent research and elucidate the mechanisms through which polyphenols in tea and coffee interact with iron absorption pathways in the human body.

Methodology: A systematic review of peer-reviewed literature was conducted to synthesize findings from studies investigating the impact of polyphenols, such as chlorogenic acid in coffee and flavonoids in tea, on non-heme iron absorption and their implications for iron status and anaemia.

Results: The review reveals that tea and coffee, both rich sources of polyphenols, can significantly inhibit non-heme iron absorption in the gastrointestinal tract, particularly affecting absorption efficiency in the duodenum and proximal jejunum. This inhibition may contribute to reduced iron availability and increase the risk of iron deficiency anaemia.

Conclusion: Despite their health benefits, including antioxidant properties, tea and coffee consumption may pose a risk for iron deficiency anaemia due to their inhibitory effects on iron absorption. Strategies to mitigate these effects, especially for vulnerable populations, should be considered.

Keywords:

Tea, coffee, polyphenols, iron absorption, iron deficiency anaemia

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RHS-022

Exploring the Non-Alcoholic Fatty Liver Disease Mechanism of Nigella Sativum By Molecular Docking Studies

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ABSTRACT:

Aim: Non-alcoholic fatty liver disease (NAFLD) is a liver disorder characterized by excessive fat accumulation without significant alcohol intake. The purpose of this study is to investigate and discover the novel phytochemicals of Nigella sativum targeting the major sites for the treatment of NAFLD using computer-based screening.

Methods: The study analysed 86 active phytochemicals from N. sativum and possible control drug Pentoxifylline against NAFLD using in silico computational analysis. Molecular docking studies were performed against four major targets of NAFLD, including Farnesoid X Receptor, Fatty Acid Synthase, Peroxisome Proliferator-Activated Receptor-alpha, and Tryptophan 5-Hydroxylase. In silico prediction studies of pharmacokinetics were also conducted using SwissADME and Protox online web servers.

Results: Extensive docking analyses confirmed that out of 86 screened phytoconstituents, 4 compounds: Isocaryophyllene, Alpha-Santalyl Acetate, Farnesyl Acetate, and Dithymoquinone showed higher binding affinity than the possible control drug with the studied NAFLD target proteins. Pharmacokinetics prediction studies further verified that all selected phytoconstituents were safe and exhibited good ADMET properties.

Conclusion: Currently, there is no drug available to treat NAFLD. Thus, the selected phytochemicals may possess potential lead compound for NAFLD and effectively control the spread of progression, which can be confirmed by further in vitro and in vivo studies.

Keywords:

Computational analysis, Non-alcoholic fatty liver disease, Pharmacokinetic properties, Phytochemicals, Receptors.

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RHS-023

Stevia: A Promising Sweetener for Effective Diabetes Management

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ABSTRACT:

Aim: This review aims to evaluate the potential of *Stevia rebaudiana Bertoni* as a therapeutic agent for diabetes management, focusing on its effectiveness, safety, and functional applications.

Objective: The primary objectives are to analyze the mechanisms through which *Stevia* affects blood sugar levels, assess its impact on oxidative stress, and determine its overall efficacy and safety in diabetes treatment and prevention.

Methodology: A comprehensive literature review was conducted, analyzing recent studies and experimental data on *Stevia's* anti-diabetic properties. The review includes evidence from animal model experiments, clinical trials, and investigations of Stevia's metabolic effects. Key compounds such as steviol, rebaudioside A, and stevioside were examined for their roles in glucose regulation and oxidative stress reduction.

Results: The review highlights that *Stevia* significantly lowers blood sugar levels and reduces oxidative stress in animal models. Compounds in *Stevia*, such as stevioside and rebaudioside A, have demonstrated potential in improving glycemic control and supporting liver and kidney functions. Additionally, *Stevia* shows promise as a functional food with minimal adverse effects.

Conclusion: *Stevia rebaudiana Bertoni* presents a viable alternative to traditional sweeteners and anti-diabetic medications. Its ability to manage blood sugar levels and reduce oxidative stress underscores its therapeutic potential. However, further research is needed to identify additional metabolites and fully understand their impact on diabetes and related metabolic disorders.

Keywords: Anti-diabetic, Animal model, Diabetes, Stevia, Oxidative stress, Glycemic control, Functional food

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RHS-024

A Review on The Use of Cilnidipine as An Alternative for The Treatment of Amlodipine Induced Pedal Edema

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ABSTRACT:

Aim:

The aim the study is to review the use of cilnidipine as an alternative treatment for amlodipine induced pedal edema

Methodology:

I searched my topic on PubMed, National Library of Medicine and Google Scholar. From the result, I choosed the relevant publication according to my topic by using Amlodipine, Cilnidipine, and Pedal oedema as a keyword.

Results:

Among the DHP CCBs, Amlodipine has an outstanding pharmacokinetics and pharmacodynamic profile. But the only major drawback effect of pedal oedema. In certain cases, it leads to the discontinuation of the effective antihypertensive treatment. The cilnidipine being N-type and L-type CCB have equal efficacy to that of Amlodipine in reducing blood pressure.

Conclusion:

Cilnidipine may be used as an alternative treatment for the Amlodipine-induced pedal edema.

Keywords:

Hypertension, Amlodipine, Cilnidipine, Pedal oedema, Antihypertensive, Dihydropyridine (DHP), Calcium channel blocker (CCB).

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RHS-025

The Revolutionary Role of CRISPR-CAS9 in Treating Human Diseases - A Review

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ABSTRACT:

Aim:

To explore how CRISPR-Cas9 gene-editing technology can treat various human diseases, with a focus on cancer, drug resistance, and neurodegenerative conditions.

Methodology: A detailed literature review was conducted, analyzing recent research articles, clinical trials, and review papers on CRISPR-Cas9. The review covers its origin, mechanisms, and advantages over other genome-editing techniques. Studies on CRISPR-Cas9's role in generating disease models and targeting drug resistance mechanisms in cancer cells were critically evaluated. Furthermore, advancements in creating rat models for drug metabolism and pharmacokinetics, as well as its applications in neurodegenerative disease research, were discussed.

Results: CRISPR-Cas9 has shown exceptional promise in editing genes with high specificity and efficiency, leading to significant advancements in therapeutic research. In cancer therapy, CRISPR-Cas9 has been instrumental in identifying drug resistance mechanisms and enhancing the efficacy of existing treatments. Additionally, the technology has been pivotal in generating animal models that facilitate drug discovery and the understanding of disease mechanisms, particularly in neurodegenerative diseases.

Conclusion: CRISPR-Cas9 is a groundbreaking technology with great potential for treating diseases, creating precise disease models, and tackling drug resistance. It has revolutionized cancer research and therapy and is making significant contributions to other areas of medicine. Despite challenges and safety concerns, ongoing research and technological advancements continue to enhance its clinical and preclinical applications.

Keywords: CRISPR-Cas9, gene editing, cancer treatment, drug resistance, disease models, Neurodegenerative diseases, Parkinsons disease

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RHS-026

Artificial Intelligence in Drug Discovery and Pharmaceutics-A Review

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ABSTRACT:

Aim:

This paper investigates the growing effect of Artificial Intelligence (AI) in the pharmaceutical sector, with the review focuses on novel AI strategies for medication delivery optimization, increased drug bioavailability, and targeted drug delivery. The search also points out works that combine AI with imaging methods or computational models for medication delivery system design.

Methodology:

This study examines searches for artificial intelligence (AI) in medication delivery and development utilizing databases such as PubMed, Google Scholar, and ScienceDirect. It suggests a search that demonstrates AI influence on medication delivery efficiency and efficacy.

Result:

Based on the review while AI offers significant opportunities to streamline drug discovery timelines and costs, its effectiveness hinges on addressing data-related challenges and maintaining collaborative, interdisciplinary research efforts alongside fundamental biochemical investigations. These initiatives are essential for maximizing AI's transformative impact on modern drug discovery practices.

Conclusion:

Artificial Intelligence is transforming drug discovery and development in the pharmaceutical market through advanced applications, yet ongoing challenges persist in pharmaceutical product management and clinical trial design.

Keywords: Artificial intelligence, Drug Discovery, Drug development, pharmaceutical industry, Clinical trials.

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RHS-027

Dietary Intake of Cluster Bean Decreases The Complications Associated with Covid-19 Infected Patients

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ABSTRACT:

COVID-19 infection increase the morbidity and mortality rate. The corona virus of SARS-CoV-2 and MERS-CoV and COVID-19 have better adaptation in human. Loss of smell and loss of taste and respiratory problems are reported in COVID-19 infected patients. It is a respiratory syndrome, viral replication is responsible for the infection. Corona infection adversely affect the cancer patients due to their immunocompromised and also infection of COVID-19 can cause both lung and kidney damage. These infectious agents affect the viral replication, immune evasion and transmission within different human populations. The host metabolic pathway irregulated with COVID-19 infection. It mainly worse the health conditions of cardiovascular patients and diabetic patients. The Results of quantitative analysis report of cluster beans have active phytochemicals such as HB acid, gallic acid, Vanillic acid, sinapic acid, kaempferol, ferulic acid, coumarins, catechin and also it contains high amount of fibers. It available in cheap. It is obtained from safe source of plants and has minimum side effects. The guar gum enhances the bile acid secretion and prevent the absorption of cholesterol. The current review aims to explore the various active metabolites present in the cluster beans minimize the complications related to COVID-19 patients. It has wide potential action in antioxidant, anti-diabetic, anti-microbial, cardio-protective and cytotoxic potential. In this review we tried to explain regular intake of cluster beans in their diet plays a major role in reducing the post complications related to COVID-19 affected patients.

Keywords: COVID-19, Cardiovascular disease, Diabetes, Inflammation, Cluster beans.

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RHS-028

Biofortification of Millets: Enhancing Nutritional Profiles

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ABSTRACT:

Aim:

To evaluate the nutritional characteristics of Indian millets and assess how different processing techniques influence their nutrient content, in order to enhance food security and combat malnutrition.

Objectives:

Assess the Nutritional Profile: To detail the macro- and micronutrient content of Indian millets, including foxtail, kodo, proso, little, and pearl millets. Evaluate Processing Techniques: To review traditional and modern processing methods (such as germination, fermentation, dehulling, and milling) and their impact on the nutritional properties of millets. Identify Nutritional Changes: To determine how specific processing techniques affect the nutrient content and digestibility of millets. Provide Recommendations: To suggest optimal processing methods for maximizing the nutritional value of millets and improving their role in addressing food insecurity.

Methodology:

1. **Literature Review**: Conduct an extensive review of research and review articles focusing on the nutritional characteristics and processing techniques of Indian millets.
2. **Data Collection:** Gather information on various processing methods such as fermentation, germination, dehulling, extrusion, and others.
3. **Analysis**: Analyze how these processing techniques affect the nutrient content, dietary fiber, and micronutrients of millets.
4. **Comparison**: Compare the effects of different processing techniques on the overall nutritional value and digestibility of millets.

Results: Nutritional Characteristics: Millets are rich in essential macro- and micronutrients, carbohydrates, proteins, dietary fiber, lipids, and phytochemicals. Processing Impact: Germination and fermentation were found to improve the nutritional characteristics of millets. Optimal Techniques: Certain processing techniques enhance nutrient bioavailability and contribute positively to the nutritional profile of millets.

Conclusion

By selecting appropriate processing methods, it is possible to maximize the nutritional value of millets, thereby contributing to improved food and nutrition security globally.

Keywords: Millets, Nutritional Characteristics, Processing Techniques

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RHS-029

Advancements And Challenges Of 3D Printing (3DP) in Pharmaceuticals: A Review

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ABSTRACT:

Aim:

3D printing (3DP) is one of the most ingenious technologies, particularly in the pharmaceutical field, since its inception in the early 1980s. 3D printing technology enables unprecedented versatility in the design and production of complex materials, facilitating customized and programmable medicine.

Objective*:* This review aims to understand and explore the advancements and applications of 3DP in the pharmaceutical field and the probable obstacles being faced in this process.

Methodology*:* An extensive literature search was conducted from October 2013 to June 2024 using keywords such as "3D Printing" in combination with "technologies," "pharmaceutical development," "application," and "drug delivery" on search engines including Scopus, Web of Science, PubMed, Science Direct, and Google Scholar.

Results*:* The discussion and analysis revealed that several 3D printing technologies based on varying principles have been developed. Although 3DP is still in its growing stage, this technology has made the fabrication of extremely sophisticated and intricate dosage forms feasible.

Conclusion: Despite numerous advantages and benefits in pharmaceutical and health care systems, there are several technical and regulatory challenges obstructing its extensive utilization. With increasing investments and research in this field, it has the potential to overcome these limitations in the future.

Keywords: 3D Printing, Pharmaceutical Development, Drug Delivery, Programmable Medicine

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RHS-030

A recent trend on Zebrafish Larvae to identify novel targets for the treatment of Parkinson's disease

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ABSTRACT:

Parkinson's disease (PD) is a debilitating neurological disorder characterized by progressive deterioration of motor functions such as tremors, rigidity, bradykinesia (slow movement), and impaired coordination. These symptoms result from the gradual loss of dopamine-producing neurons in the substantia nigra pars compacta of the brain, leading to dopamine insufficiency. Dopamine is vital for regulating movement, and its deficiency disrupts the brains ability to coordinate smooth and controlled motions, thereby severely impacting daily activities and diminishing cognitive functions over time. To explore potential treatments and understand the underlying mechanisms of PD, researchers often utilize zebrafish larvae as an experimental model. Zebrafish offer several advantages, including their genetic tractability, rapid development, and transparency during early stages of life. These characteristics make them ideal for studying developmental biology, neurobiology, and disease processes. By inducing dopamine neuron degeneration in zebrafish larvae, scientists can replicate aspects of PD pathology and observe its effects on motor behaviors such as swimming activity and response to stimuli. Moreover, zebrafish larvae facilitate high-throughput screening of various compounds to identify potential therapeutic targets for PD. Researchers have also used zebrafish models to validate these targets and assess the efficacy of small molecules aimed at alleviating PD symptoms. In summary, zebrafish larvae represent a valuable tool in Parkinson's disease research, offering insights into disease mechanisms and serving as a platform for the development of new therapeutic strategies. Their contributions continue to advance our understanding of PD and hold promise for future treatments that could improve the lives of patients affected by this challenging condition.

Keywords: Parkinsons Disease, Zebrafish Larvae, Novel Targets, Therapeutic Targets, Dopamine, Neuron Degeneration, Motor Behavior.

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RHS-031

Management of PCOD (Polycystic Ovarian Disease) By Intake of Dietary Supplements

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ABSTRACT:

PCOD is an female endocrine disorder, affecting between 4 to 18% in their reproductive age. PCOD is a heterogenous disorder characterized by hyperandrogenism and chronic anovulation. PCOD has a wide range of health implications, including increased risk of metabolic (obesity, cardiovascular disease, diabetes), reproductive (miscourage, infertility, neonatal and pregnancy complications) and psychological disorders (stress, depression and anxiety). PCOD is a polygenic, polyfactorial, systemic, inflammatory, disregulated steroidal hormonal state, autoimmune disease manifesting largely due to lifestyle errors. Metformin and to some extent thiazolidinediones have been considered as drug of choice for PCOD management, but they have a side effect and their efficacy of non-insulin resistant and non-obese patients is controversial. This can be overcome by using different natural substance and complementary medicines with some physical exercises for the improvement of their healthy wellbeing and fertility. Recently, treatment of PCOD patients with nutritional supplements and herbal medicines, has attained satisfactory results with the absence of minimum side effects. In this review, dietary supplements have ability to decrease insulin sensitivity and inflammation, to improve the restoration of ovarian function.

Key words: PCOD, hormonal disorder, dietary supplements.

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RHS-032

Bioactive Natural Polymer - Based Hydrogels for Enhanced Wound Healing: A Multifunctional Approach

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ABSTRACT:

Wound healing is a complex and dynamic process that requires a multifacetedapproach to promote tissue repair and regeneration. Among the many dressings on the market, hydrogels have drawn more interest because of their three-dimensional cross-linked polymer networks that can absorb and hold a lot of water, as well as their tunable physicochemical properties. Hydrogels made from natural polymersare popular for their excellent biocompatibility, low toxicity, and functionality. Hydrogels based on bioactive natural polymers have shown great promise in improving wound healing because of their special combination of qualities, which includes extracellular matrix mimicking, biocompatibility, and biodegradability. To create advanced hydrogels that support tissue regeneration and a favorable woundenvironment by incorporating bioactive molecules, nano/micro-particulate reinforcement, stimuli-responsive properties, cell encapsulation, 3D printing, and antimicrobial/anti-inflammatory properties. Recent years have seen a noticeable advancement in the study of natural polymers possible use in biomedicine. Personalized hydrogels that are suited to each patients needs and wound characteristics are made possible by the multifunctional approach, which presents a viable way to promote wound healing and optimize patient outcomes. This reviewprovides a thorough overview of the creation and design of hydrogels based on multifunctional, bioactive natural polymers for use in wound healing applications

Keywords: Bioactive natural polymers, Hydrogels, Wound healing, Multifunctional approach, Tissue regeneration.

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RHS-033

Recent Update on Synthetic Polymers Used in Drug Delivery System

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ABSTRACT:

Polymer is defined as a substance composed of macromolecules, the molecular structure of which essentially comprises the multiple repetition of units derived, actually or conceptually, from molecules of low relative molecular mass. Synthetic polymers are man-made macromolecules (monomers) composed of repeating units, created through chemical reactions. They have a wide range of properties and applications. Synthetic polymers have revolutionized drug delivery systems, offering controlled release, targeted delivery, and improved bioavailability. Recent updates in polymer chemistry and nanotechnology have led to the development of novel synthetic polymers with enhanced properties. This review highlights the latest advancements in synthetic polymers for drug delivery systems, including stimuli-responsive polymers, polymer conjugates, and 3D printing of polymers. We discuss the applications of poly (2-hydroxyethyl methacrylate), poly (N-isopropyl acrylamide), and dendritic polymers in drug delivery, as well as the challenges and future directions in this field. The integration of synthetic polymers in drug delivery systems has the potential to transform the pharmaceutical industry, enabling personalized medicine and improved patient outcomes.

Keywords: Synthetic Polymers, Drug Delivery Systems, Stimuli-Responsive Polymers, Polymer Conjugates, 3D Printing, Controlled Release, Targeted Delivery.

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RHS-034

Natural Polymers: A Versatile platform for drug delivery and applications

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ABSTRACT:

Natural polymers that come from renewable resources are becoming more and more popular in biomedical and medication delivery applications. These materials have characteristics including non - toxicity, mucoadhesion, and controlled release capabilities. They are also biodegradable and biocompatible. Natural polymers such as polysaccharides, proteins, and polyphenols—which are used in drug delivery systems for topical, oral, injectable, and ocular administration—are among the most studied natural polymers. The focus of current research is on classifying, characterizing, and modifying natural polymers to enhance their usefulness and performance. These polymers can be tailored for particular applications by applying processes including grafting, mixing, and cross-linking. Natural polymers are perfect for drug delivery and medicinal applications because they have qualities including biodegradability, biocompatibility, and non-toxicity. To be used more widely, they must overcome issues with microbial contamination, batch variability, and uneven hydration rates, among other issues. In order to solve these problems and discover new applications for natural polymers, research and development are still underway. Natural polymers have enormous potential to revolutionize drug delivery and the biomedical sciences by virtue of their special qualities and adaptability, which could result in novel and efficient treatments for a wide range of illnesses.

Keywords:

Natural Polymers, Biodegradable , Biocompatible, Polysaccharides, Control Release.

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RHS-035

A Recent Trend on Hepatoprotective Potential Of Herbs By Using Zebrafish Model

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ABSTRACT:

Liver diseases are a major global health concern, and there is a pressing need for effective hepatoprotective agent. Zebrafish have emerged as a valuable model organism for studying various aspects of liver development, function and disease. The zebrafish liver has striking similarities to the human liver in terms of structure, function and regenerative capacity. Researches have successfully induced liver damage in zebrafish using chemical toxins, genetic manipulation and other methods, thereby allowing the study of disease mechanism and the progression of liver disease. The zebrafish model is a bridge between in vitro assays and mammalian in vivo studies. This model is powerful in its breadth of application and tractability for research. This review highlights how research on Zebrafish has provided valuable insights into the various herbs used to treat human liver disease. The hepatoprotective studies in Zebrafish models is that they provide valuable insights into the liver-protective effects of various compounds, herbal extracts and drugs, helping to identify potential therapeutic agents for human liver diseases. Additionally, Zebrafish models offer a convenient and cost-effective alternative to traditional mammalian models for studying liver function and toxicity.

Keywords:

Hepatoprotective, zebrafish, Liver injury, Herbal extracts, Anti- inflammatory, Anti-oxidant..

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RHS-036

Fecal microbiota transplantation as a novel approach for *Clostridium difficile* infection- a review

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ABSTRACT:

Aim:

In recent years, *Clostridium difficile* has emerged as the primary cause of pseudomembranous colitis and antibiotic-associated diarrhoea "this review aims to assess the efficacy, safety, and comparative effectiveness of faecal microbiota transplantation (FMT) as an emerging therapeutic option, particularly in cases of recurrent or refractory CDI**.**

Methodology:

This review is characterized by a thorough and disciplined literature search. In this review, published papers and abstracts related to faecal microbiota transplantation (FMT) are identified by a computerized literature search of electronic databases like PubMed, science direct, and Google Scholar. References in the studies were received to identify additional studies.

Results:

From the studies, it has shown that FMT has a success rate of 85% for treating *Clostridium difficile* infection and also prevent its recurrence. This infection is treated by antibiotics like metronidazole, vancomycin and fidaxomicin. But due to recurrence of the infection, FMT could be the alternative approach than the antibiotics to prevent the re-emergence of the infection. Surgery is taken to remove the damaged colonic segment, if it is necessary in conditions like toxic megacolon or organ failure but patients who undergo surgery to treat a C. difficile infection also have a recurrence rate of about 25%.

Conclusion:

Based on this study I conclude that faecal microbiota transplantation has more effective treatment strategy for *clostridium difficile* infected patients.

KEYWORDS:

Clostridium difficile, Faecal microbiota transplantation (FMT), Infection, Surgery.

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RHS-037

A review on Chandipura virus disease - A outbreak among Childrens in tropical areas

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Aim:

Emergence & Re-Emerging Viral Infection are the Major Public Concern in the current decade. One of the fatal Infection, Chandipura Virus disease cause high mortality within 24 hrs of commencement of symptoms in Children. This Review is focused on the Epidemiology, Clinical Features, Preventive Aspects of CHPV Infection.

Methods:

We have Searched Pub med, Google Scholar, Web of Science, Science Direct using the Keywords "Emergence Viral Infection, Fatal Infection, Tropical Disease, CHPV Virus. Among, these we Collected 20 Literature since from the year 2000 To 2023.

Results:

From the review, increased expression of CHPV phosphoprotein upto 6hr post infection shows CHPV replication in neuronal cells and rapid destruction of the cells by apoptosis is the probable cause of rapid death in children. This Disease is characterized by Influenza like illness, Abdominal Pain, Vomiting and unpaired Neurological Function. Upto Date there is no Specific treatment for CHPV, symptomatic treatment involves use of mannitol to reduce brain cell edema. Prevention is the only Measure to Control CHPV Infection.

Conclusion:

CHPV has Been a Major Concern in Central India; warrants to control virus transmission until a Potent Anti-CHPV Agent is developed.

Keywords:

Chandipura virus, emergence, fatal disease, mortality

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RHS-038

The usefulness of Cowdung as a treatment for Eczema – A Review

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ABSTRACT:

Aim: These review focus on evaluation of clinical effectiveness of the cow dung for the skin infection.

Methodology: We have collected literatures from Google Scholar, Pubmed, Science direct, Web of Science using the keywords anti-inflammatory, anti-microbial, eczema.

Results: From the studies, the cow dung has an anti- inflammatory, anti- fungal, anti- bacterial effect. Eczema or atopic dermatitis is an inflammatory skin condition. The most common Symptoms are dry, scaly patches of skin and itching. Cow dung is rich in probiotics. Thus, it increases the production of inhibitory cytokines such as IL-10, TGF- beta are key regulators of immune homeostasis.

Conclusion: Therefore, cow dung has some advantages like bio degradable and easily available and rich in probiotic that produce anti-inflammatory property. It might be developed to treat eczema in the future.

Keywords: Anti-bacterial, Anti-fungal, Anti-inflammatory, Cow dung, Eczema, Skin infection.

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RHS-039

Effects of Trigonelline in Hyperglycemic-Mediated Microglial Activation and Neuroinflammation

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ABSTRACT:

Aim: To study the protective effects of trigonelline (TG) in hyperglycemia-mediated microglial activation and neuro inflammation – an in vitro approach.

Methodology: In this study we used an in vitro diabetes mellitus and neuroinflammation model as N9 microglia to mimic microglial activation following High-glucose exposure. Further, we explored the ameliorative effects of TG against glial cells exposed to high glucose (50mM)in the presence and absence of TG (200µM). After the experimental period glial cells were used for western blotting, microscopic study and cytokine release study.

Results: High-glucose exposure to N9 cells significantly increased the mitochondrial membrane potential, activation as well as release of proinflammatory cytokines including TNF- α, IL-1β, IL-6 and superoxide generation concomitantly decreased the antioxidant defence enzymes including SOD2, CAT, GPx. Intriguingly, TG significantly prevented these alterationsin mitochondria and in microglia upon high-glucose exposure. Furthermore, TG also prevented the increased release of proinflammatory cytokines from microglial cells upon High-glucose exposure, suggested that TG ameliorated High-glucose mediated microglial activation and neuroinflammation.

Conclusion: Overall, it has been suggested that TG ameliorated High-glucose mediated microglial activation and neuroinflammatory cytokines release via preventing mitochondrial oxidative stress and mitochondrial depolarization.

Keywords: Trigonelline, diabetes mellitus, neuro inflammation

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RHS-040

pH Sensitive Drug Delivery System

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Abstract:

Background: pH-sensitive drug delivery systems exploit varying pH levels in different body environments to achieve targeted and controlled drug release, enhancing therapeutic efficacy while minimizing side effects. These systems are particularly promising in treating cancer and inflammatory diseases. This review covers the development, mechanisms, materials, and clinical applications of pH-sensitive drug delivery systems, highlighting recent advancements and challenges. Emphasizing the advantages of pH-sensitive polymers and novel formulations, it provides a comprehensive overview of the current state and future prospects of this technology.

Aim: To review the development and application of pH-sensitive drug delivery systems in therapeutic contexts.

Objectives: To discuss the mechanisms of pH sensitivity in drug delivery; To explore materials and methods used in these systems; To analyze clinical applications and effectiveness; To identify challenges and potential improvements in the field.

Methodology: A thorough literature review was conducted focusing on recent advancements in pH-sensitive drug delivery systems. Sources were selected based on their relevance, novelty, and contribution to the field. Data was gathered from academic journals, clinical trials, and case studies.

Results: pH-sensitive drug delivery systems exploit the varying pH levels in different body environments to trigger drug release. Common materials include pH-sensitive polymers like polyacrylic acid and chitosan. These systems have been particularly effective in targeting acidic tumor microenvironments and inflamed tissues, improving therapeutic outcomes while minimizing off-target effects. Recent advancements include the development of multi-responsive systems that respond to pH and other stimuli for enhanced control.

Conclusion: pH-sensitive drug delivery systems offer targeted and controlled drug release, with substantial potential in treating cancer and inflammatory diseases. Future research should focus on enhancing the precision, stability, and biocompatibility of these systems, as well as exploring new materials and formulations.

Keywords: pH-sensitive, drug delivery, polyacrylic acid, chitosan, cancer therapy

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RHS-041

Development And Characterization of Fexofenadine Hydrochloride Oil Entrapped Floating Alginate Beads to Enhance Oral Bioavailability

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ABSTRACT:

Aim: To develop and characterize fexofenadine hydrochloride oil entrapped floating alginate beads that would benefit oral drug delivery systems, emphasizing controlled release systems for improved drug bioavailability and reduced dosing frequency.

Objectives: To overcome the narrow absorption of drug in the gastrointestinal tract. To enhance the gastroretention time including floating systems, swelling and expanding systems, bioadhesive systems, and high-density systems.

Methodology:

- **Gelation Method-**Sodium alginate is used to form gel beads in the presence of calcium chloride,enhancing the drugs retention and release properties.
- **Emulsion Gelation Method-** Involves forming an emulsion of sodium alginate and oil, which is then gelled using calcium chloride to create floating beads.

Formulation and Evaluation: The project evaluates the prepared beads for parameters such as buoyancy, drug entrapment efficiency, and release profiles. Various oils and their concentrations are tested to optimize the bead characteristics**.**

Results and Discussion: The developed formulation was more effective in enhancing the bioavailability of Fexofenadine Hydrochloride. Detailed analysis of the drug release mechanism and the impact of different formulation variables were carried out to validate the developed formulation.

Conclusion: The study concluded that the optimized floating alginate beads can significantly enhance the bioavailability of Fexofenadine Hydrochloride, offering a promising approach for its controlled and prolonged delivery in the gastrointestinal tract.

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RHS-042

Gastro Retentive Drug Delivery System: A Review

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ABSTRACT:

Aim: Controlled release dosage forms have been extensively used to improve therapy with several important drugs. The purpose of this review is to compile recent literature on gastroretentive drug delivery systems, focusing on various gastroretentive approaches that have become leading methodologies in site-specific orally administered controlled-release drug delivery.

Objective: The present study attempts to give an insight into the gastroretentive drug delivery systems, and gastric floating tablets, in particular.

Methodology: To measure the floating force kinetics, a novel apparatus for determination of resultant weight has been reported in the literature. The apparatus operates by measuring continuously the force equivalent to F (as a function of time) that is required to maintain the submerged object. This apparatus helps in optimizing FDDS with respect to stability and durability of floating forces produced in order to prevent the drawbacks of unforeseeable intragastric buoyancy capability variations.

Results: Researchers in a recent study have prepared a floating multilayer coated tablets based on gas formation. The system consists of a drug containing core tablet coated with a protective layer (hydroxylpropyl methyl cellulose), a gas forming layer (sodium bicarbonate) and a gas-entrapped membrane, respectively. Eudragit RL 30D was chosen as a gas-entrapped membrane due to its high flexibility and high water permeability. The obtained tablets enabled to float due to the CO2 gas formation and the gas entrapment by polymeric membrane.

Conclusion: Floating drug delivery dosage forms serve the best in the treatment of diseases related to the GIT and for extracting a prolonged action from a drug with a short half-life.

Keywords: Floating drug delivery dosage forms, Gastro retentive drug delivery systems

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RHS-043

A Comprehensive Review on Novel Drug Delivery System for Targeting Nocturnal Asthma Based on Chronopharmaceutical Approach

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ABSTRACT:

Nocturnal asthma occurs when asthma symptoms intensify during night, impairing sleep quality and daily functioning. Chrono-modulated drug delivery systems have emerged as a potential technique or targeting nocturnal asthma due to their ability regulate the drug delivery with disease patterns and circadian rhythms. Numerous physiological processes, such as drug absorption, distribution, metabolism, and elimination, are regulated by the circadian rhythm. Drug delivery systems that use chrono-modulation release controlled dosages of medication at predetermined intervals to correspond with the body's natural rhythm. Two-thirds of patients with asthma have nocturnal asthma, which is characterized by an increase in symptoms such as wheezing, tightness in the chest, increased responsiveness of the airways, and deterioration of lung function during the night. Between midnight and 8:00 am, and particularly around 4:00 am, these symptoms manifest. The chrono-therapeutic pulsatile systems release the drug in a pulsatile manner at a predetermine off-release period (lag time) in a specific site in order to emulate the chrono pathological Symptoms. Emphasise formulation and evaluation methods as well as the biomedical applications of chrono- modulated drug delivery systems in the review.

Keywords: Nocturnal asthma, chronotherapy, pulsatile drug delivery system.

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RHS-044

Metformin: A Promising Treatment to Slow the Alzheimer's Disease Progression

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ABSTRACT:

Aim: The aim of our study is to review the effects of metformin in the progression of Alzheimer's disease in type 2 DM patients.

Methodology: We performed an extensive search on bibliographic databases such as Scopus, web of science, Pub Med and science direct by using the boolean search keywords which are relevant to my topic .The inclusion criteria include the articles published in english language and recent articles published in past 10 years.

Results: Several studies have shown that metformin therapy for 2-4 years significantly reduced the risk of neurodegeneration in patients with T2DM compared to those without metformin treatment. Clinical trials concluded that, metformin treatment decreases the risk of dementia and slows the neurodegenerative progression by 40% for 50-64 yrs old patients and 29% for 65-74 yrs old patients. So metformin could be an effective strategy for delaying Alzheimer's disease progression.

Conclusion: The use of metformin as a potential therapeutic option for Alzheimer's disease shows promise in delaying disease progression and protecting against cognitive decline. Further research and clinical trials are required to establish the optimal dosage and treatment duration for metformin in Alzheimer's patients.

Keywords: Total laparoscopic hysterectomy, salphingoophrectomy, pharmaceutical care.

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RHS-045

Advancements in Theranostics: Integrating Diagnostics and Therapeutics in Modern Dosage Forms

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ABSTRACT:

Aim: This review provides an updated overview of theranostics, emphasizing recent advancements in dosage forms that integrate diagnostic and therapeutic functionalities for personalized medicine.

Objective: The objective is to highlight developments in theranostic agents, their incorporation into various dosage forms, and applications in oncology, cardiology, and neurology.

Methodology: The review synthesizes recent literature on theranostic technologies, focusing on nanocarrier systems like nanoparticles, polymeric micelles, liposomes, and dendrimers. It examines oral, parenteral, and transdermal systems, emphasizing their dual diagnostic and therapeutic capabilities.

Results: Theranostic agents enhance disease diagnosis and treatment. Nanoparticles, such as gold and iron oxide nanoparticles, improve targeted delivery and imaging. Innovative dosage forms, including nanoemulsions, hydrogels, and liposomal injectables, enable controlled drug release and real-time monitoring. These advancements are particularly impactful in cancer, cardiovascular, and neurological disorders.

Conclusion: Theranostics offers a transformative approach to personalized medicine by integrating diagnosis and therapy. Despite challenges like biocompatibility, regulatory approval, and cost, theranostic platforms promise improved patient care and outcomes. Future research should address existing barriers to enhance clinical adoption and maximize theranostics potential in healthcare.

Keywords: Theranostics, Personalized Medicine, Nanoparticles, Drug Delivery, Diagnostic Imaging, Nanocarriers, Dosage Forms, Cancer, Cardiovascular, Neurological Disorders.

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RHS-046

Analysis of Ferric Citrate Phosphate Binding via Ion Exchange Chromatography: Kinetic and Equilibrium Perspectives

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ABSTRACT:

Aim: The aim of this study was to evaluate the in vitro binding capacity of ferric citrate, a drug used to control serum phosphorus in patients with chronic kidney disease.

Objective: To develop and validate a simple and efficient ion chromatography (IC) method for the determination of phosphate across the pH 3.0 and 7.5.

Methodology: Chromatographic separation was achieved using a Dionex ICS-2000 IC system with a Dionex AS11 IonPac analytical column and a Dionex AG11 IonPac guard column. The temperature was maintained at 30°C, with an injection volume. The method was validated according to USP Category I requirements, assessing accuracy, precision, quantification limit, linearity, and stability.

Results: The study successfully developed and validated an ion chromatography method for evaluating the in vitro binding capacity of ferric citrate

Conclusion: This validated method can reliably support further studies on lanthanum carbonates efficacy in reducing serum phosphate levels in patients with end stage renal disease.

Keywords: Ferric citrate, Phosphate binding , Ion exchange chromatography , Kinetic perspective.

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RHS-047

Cefepime - Induced Neurotoxicity: A Review

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ABSTRACT:

Aim: The aim of the study is to review cefepime-induced neurotoxicity.

Methodology:

The information has been gathered from PUBMED, GOOGLE SCHOLAR an electronic database. In search of cefepime-induced neurotoxicity, 101 articles are available. The articles screened are 50, and the studies included in this review are 15.

Results: Cefepime is a β-lactam antibiotic, and a fourth-generation cephalosporin is highly effective against both gram-positive and gram-negative bacteria. It is a serious life-threatening adverse effect. According to Tanjot Saini et al. Marie Francisca Grill et al. Lauren E.Payne et al. Holy Lindsay et al. Oluwafemi Ajibola et al. dose adjustment can reduce the incidence of toxicity, but without close monitoring even therapeutic levels can lead to neurotoxicity. According to Gozun moan, Serum or plasma cefepime trough levels should be monitored.

Conclusion: The management of Cefepime-induced neurotoxicity involved the withdrawal of cefepime which led to improvement within 2-7 days. Haemodialysis rapidly decreases the cefepime levels in the blood and CSF.

Keywords: Cefepime, Neurotoxicity, Haemodialysis.

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RHS-048

Novel Analytical Techniques for The Comprehensive Characterization and Analysis of Nanoparticles (NPs)

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ABSTRACT:

Aim: This study aims to explore and highlight novel analytical techniques for the comprehensive characterization and analysis of nanoparticles (NPs). These techniques are essential for understanding the unique properties of NPs, which are critical for their safe and effective application in various fields, including medicine, materials science, and environmental studies.

Objectives: Identify and describe advanced analytical methods for determining the size, shape, and surface characteristics of nanoparticles, such as dynamic light scattering (DLS), transmission electron microscopy (TEM), and scanning electron microscopy (SEM). Evaluate the capabilities of spectroscopic techniques like Raman spectroscopy and Fourier-transform infrared spectroscopy (FTIR) for analyzing the chemical composition and surface chemistry of nanoparticles. Discuss the use of mass spectrometry, particularly inductively coupled plasma mass spectrometry (ICP-MS), for precise quantification and isotopic analysis of nanoparticles. Explore emerging methods, including single-particle ICP-MS (spICP-MS) and surface-enhanced Raman scattering (SERS), for their potential to enhance sensitivity and specificity in nanoparticle analysis.

Conclusion: The study concludes that the integration of these novel analytical techniques provides a comprehensive framework for the detailed characterization of nanoparticles. This integrated approach enables a deeper understanding of the physicochemical properties, stability, and interactions of nanoparticles in various environments. Continuous innovation in these analytical methods is crucial to support the safe and effective development of nanomaterials, ensuring their optimal performance and minimal risk in diverse applications.

Keywords: Keywords: Nanoparticles, ICP-MS, Dynamic Light Scattering, Surface-enhanced Raman Scattering (SERS)

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RHS-049

Impact Of Microplastics in Human Sperm and Ovum Health

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ABSTRACT:

Aim: This review aims to evaluate the effects of microplastics on human reproductive health, specifically focusing on their impact on sperm and ovum.

Objective: To synthesize current research on how microplastics affect sperm motility, morphology, viability, and oocyte quality, as well as to elucidate the mechanisms behind these effects.

Methodology: A systematic review of peer-reviewed literature from the past decade was conducted using databases such as PubMed, Scopus, and Web of Science. Studies were selected based on relevance, quality, and recency, encompassing both in vivo and in vitro research on human and animal models.

Results: The review found that microplastics are present in human semen and follicular fluid, indicating direct exposure to reproductive cells. In sperm, microplastics were linked to reduced motility, abnormal morphology, and increased oxidative stress, which collectively decrease fertilization potential. For oocytes, microplastic exposure resulted in oxidative damage, hormonal disruption, and compromised developmental competence. The leaching of toxic chemicals from microplastics, such as phthalates and bisphenol A (BPA), further aggravated these adverse effects through endocrine disruption.

Conclusion: The evidence suggests that microplastics pose a significant risk to human reproductive health by adversely affecting sperm and oocyte quality. Despite the accumulating data, further comprehensive studies are necessary to fully understand the long-term implications. This review highlights the urgent need for regulatory measures to reduce microplastic pollution and its detrimental effects on fertility. Public education and changes in lifestyle to minimize microplastic exposure are also crucial for safeguarding reproductive health.

Keywords: Microplastics, reproductive health, sperm, ovum, oxidative stress, endocrine disruption

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RHS-050

Advancements and Challenges in Targeted Drug Delivery Systems for Cancer Therapy: A Comprehensive Review

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ABSTRACT:

Aim: This review aims to explore targeted drug delivery systems (TDDS) in cancer therapy, focusing on their capacity to selectively deliver therapeutic agents to cancer cells while minimizing collateral damage to healthy tissues.

Objectives: The review seeks to Examine various types of TDDS, including passive, active, and stimuli-responsive systems; Discuss advanced technologies such as cell-penetrating peptides, immunotherapy-based delivery, and gene therapy; Analyze the key mechanisms, advantages, and challenges associated with TDDS; Highlight recent research advancements and future directions in cancer drug targeting.

Methodology: An extensive literature review was conducted, encompassing peer-reviewed articles, clinical trials, and case studies. The analysis focused on identifying different TDDS strategies and evaluating their effectiveness, mechanisms, and potential clinical applications in cancer treatment.

Results and Discussion: The review outlines several TDDS types, including passive targeting via the enhanced permeability and retention (EPR) effect, active targeting through ligand-receptor interactions, and stimuli-responsive systems. Advanced technologies such as cell-penetrating peptides, immunotherapy-based delivery, and gene therapy are also discussed. The mechanisms of TDDS involve specific target recognition, controlled drug release, and intracellular delivery, which contribute to enhanced efficacy and reduced toxicity. Despite these advantages, challenges such as tumour heterogeneity, immune system clearance, and formulation complexity persist.

Conclusion: Targeted drug delivery systems have the potential to transform cancer treatment by providing more precise and personalized therapeutic options. Continued research and innovation are crucial to overcoming current challenges and fully realizing the clinical potential of TDDS.

Keywords: Cancer Drug Targeting, Targeted Drug Delivery Systems, Passive Targeting, Active Targeting, Stimuli-Responsive Systems, Immunotherapy, Personalized Medicine, Nanotechnology.

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RHS-051

Antiurolithiatic Activity of Ethanolic Extract on Stem of *Coccinea Grandis Linn* on Ethylene Glycol Induced Kidney Stone in Male Albino Wistar Rats

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ABSTRACT:

Aim: To evaluate the Pharmacognostical, phytochemical and physiochemical analysis of the stem of C*occinia GrandisLinn*

Methodology: The fresh healthy stem parts of plant of *Coccinea Grandis Linn* properly dried in under shade condition for 3 weeks, segregated, each time before extracting with the next solvent, each extract was concentrated by using rotary vacuum evaporator. Wistar albino rats of male weighing 150-250g were used for the study. The animal was feed with a normal laboratory diet and allowed to drink for albino rats. animals were divided into five groups containing six animals in each served as control and received regular male albino Wistar rat for drinking water and libitum. All extracts were given once daily by oral route. the various analytical method serum analysis, kidney homogenate analysis, acute toxicity studies, Ethylene glycol induced urolithiasis model, Statistical analysis, Phytochemical analysis.

Results: The present study is carried out with the traditional plant Coccinea grandis for the treatment of kidney stones. The Kidney stone (Urolithiasis) is induced by ethylene glycol 0.75% and calculi producing diet (CPD). To the purpose of the lithiasis male Wister albino strain was select because the urinary system of rats resembles. The experiment period days the administration (80mg/kg) IP and calculi producing diet (CPD) induce nephrotoxicity and urolithiasis in the 1to9th of the experimental period. Calcium and oxalate excretion progressively increased in calculi animals it accepted as hyperoxaluria the changes in urinary oxalated level are much more important than calcium.

Conclusion: Since Coccinea grandis lowers serum levels of urea and creatinine in blood, which were elevated as a result of kidney stones developing and histopathological investigations showing results, we may deduce from the study that it has a substantial anti-urolithiasis action.

Keywords: *Coccinea Grandis Linn,* Antiurolithiatic Activity, Kidney Stone

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RHS-052

The Comparative Study of Stem Cell and Car T Cell Therapy in Leukemia Treatment

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ABSTRACT:

Aim: Cancer is one of the leading causes of death worldwide. The aim of this review is to comprehensively summarize the efficacy, safety, side effects, cost, duration of therapy and success ratio of car t cell therapy and stem cell therapy in patients with leukaemia.

Methodology: Data has been gathered from PubMed, National Library of Medicine, and Google Scholar. 2900 articles fulfilled our inclusion criteria. The records screened are 50; from this only 15 studies are included in this review.

Results: The numerous research investigations and review articles revealing the success rate of stem cell therapy is 50% whereas car t cell therapy is 76%, Both are safe ways to treat blood cancer. Stem cell therapy ranges in price from 15 to 50 lakhs, while cart cell therapy costs 40 lakhs. Treatment for stem cell therapy lasts for a year, while treatment for carat cell therapy lasts for three months. For stem cell therapy, the relapse rate is 40 to 80%, while for cart cell therapy, it is 30 to 60%.

Conclusion: As per the review, both treatments are effective and safe, but the comparison on cost, duration of treatment, and relapsing ratio of the CAR T cell therapy shows better outcome.

Keywords: Stem cell therapy, chimeric antigen receptor T cell therapy, blood cancer, leukaemia.

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RHS-053

Evaluation of in Vitro Anti-Coagulant Activity of Chloroform Extract of *Ipomoea Sagittifolia* Burm.Fil

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Mother Terasa College of Pharmacy Illuppur, Pudukkottai – 622 102.

ABSTRACT:

Aim: Evaluation of in vitro anti-coagulant activity by Haemolytic Assay.

Objective: Now days, herbal drugs have become a subject of world importance, with both medicinal and economical implications. A regular and widespread use of herbs throughout the world has increased serious concerns over their quality, safety and efficacy. Thus, a proper scientific assessment has become the criteria for acceptance of traditional health claims. Ipomoea sagittifolia (Convolvulaceae), commonly known as morning glory in the genus Ipomoea. It is native in many countries and is used in traditional Indian medicine is used in the traditional system of medicine as an anti-coagulant activity.

Methodology:

Haemolytic Assay: The destruction of red blood cells which leads to the release of haemoglobin From the red blood cells is known as hemolysis. The hemolysis assay is used to determine the Haemolytic effect of a test compound.

Materials used: Sodium citrate, SDS, Nacl were purchased from SRL (India), and 1X PBS was from Himedia (India). 96 well plates were from Tarson (India).

Results: The hemolysis assay is commonly used to evaluate the effects of a test nanomaterial on the integrity of the red blood cells.

Conclusion : In this study, hemolytic activity of the Chloroform extract of leaves of *Ipomoea sagittifolia* was screened against normal human erythrocytes. The samples exhibited very low hemolytic effect toward human erythrocytes. In conclusion the present study confirmed that Chloroform extract of aerial parts of *Ipomoea sagittifolia* exhibits significant dose-dependent anti-coagulant activity in-vitro methods and further supports the traditional claim of herb in the treatment of anti-coagulant.

Keywords: Anti-coagulant activity, *Ipomea Sagittifolia*, Haemolytic Assay

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RHS-054

Formulation And Evaluation of Herbal Capsule for Anti-Diabetic Activity

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ABSTRACT:

Introduction: *Cnidoscolus Chayamanasa* MC Vaugh Overview Known for many as chaya, it has been used traditionally to treat diabetes and GIT.

Aim: The goal of the study was to create herbal anti-diabetic capsules using the *Cnidoscolus chayamanasa* MC vaugh that had a constant active ingredient dosage.

Objectives: Using the *Cnidoscolus chayamanasa MC vaugh*, the study sought to create herbal anti-diabetic capsules with a stable dose of the active component.

Methodology: The *Cnidoscolus chayamanasa MC vaugh* extract was encapsulated using more excipients. The bioactive ingredient and excipient were then thoroughly combined and passed through a 60# sieve before preservatives were added to create an average weight of 450 mg of hard gelatin capsules. The final capsule formulation was assessed using both *in- vitro* and *in- vivo* anti-diabetic activity tests, as well as content homogeneity, weight fluctuation, disintegrating, moisture permeation, and dissolving tests.

Result: The *Cnidoscolus chayamanasa MC vaugh* capsules that were developed demonstrated anti-diabetic effects through phytochemical investigations that indicated the presence and absence of phytochemicals, as well as pharmacognostical and chromatographical studies, ash value, and moisture content measurement.

Conclusion: Based on the findings, it appears that using the *Cnidoscolus chayamanasa MC vaugh* ethanolic extract in an appropriate capsule may be a more appealing, advantageous, and therapeutically more beneficial option for treating diabetes than using direct plant materials.

Keywords: Diabetes mellitus, *Cnidoscolus chayamanasa MC vaugh*, Chaya, Herbal capsules.

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RHS-055

Isolation Of Phytoconstituents & Invitro Antioxidant & *Invivo* Anti Inflammatory Activity Screening Of *Hedyotis Herbacea*

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ABSTRACT:

Aim: Phytochemical investigation of *Hedyotis herbacea.*

Objective: Collection & extraction of the whole plant of *H. Herbacea* by using petroleum ether, chloroform, ethyl acetate & methanol, antioxidant activity Screening by *invitro* methods & *invivo* anti-Inflammatory activity screening.

Methodology: The whole plant is collected, shade dried & sucessive extract are prepared by using petroleum ether, chloroform, ethyl acetate and methanol. A crude methanol extract also prepared. From the petroleum ether extract of *H.Herbaceae* pentatriene and 2 methyl tetra decanol were isolated by column chromatography from chloroform extract hexadecane is one and stigmasterol were isolated. The isolated compound's structure was elucidated by IR, NMR & mass spectral details

Result: Oral administration of methanol extract at 100mg|kg body weight & 200mg|kg body weight produces dose-dependent inhalation of formalin induced pan edema after 1-3hr of treatment. The ibuprofen was used as standard. In both methods, 200mg/kg dose of *hedyotis herbacea* showed Significant activity when compared to standard

Conclusion: In the present study we have successfully isolated four phytoconstituents from petroleum ether &chloroform extract. The successive extracts were screened for *invitro* antioxidant activity by using five different methods, *The invivo* anti-inflammatory activity were tested & found a significant activity with 200mg|kg dose.

Keywords: *Hedyotis herbaceae*, anti-inflammatory, antioxidant, isolation of phytoconstituents.

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RHS-056

Development And Evaluation of Antidiabetic Polymeric Nanoparticles

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ABSTRACT:

Aim: The goal is to create and assess biodegradable polymeric nanoparticles that can be used to deliver antidiabetic drugs, with an emphasis on maximizing therapeutic efficacy, establishing controlled release, and increasing drug bioavailability.

Objective: The purpose of this research is to create and evaluate polymeric nanoparticles for the encapsulation of the popular diabetes medication glibenclamide. In addition to assessing the efficacy of the formulation in in vitro and in vivo tests, the goals involve improving the therapeutic profile of glibenclamide by means of sustained drug release and enhanced bioavailability.

Methodology: Solvent evaporation and nanoprecipitation techniques were used to create biodegradable nanoparticles, evaluating drug loading efficiency, size, and surface morphology. In vitro and in vivo experiments assessed therapeutic efficacy and glucose-lowering effects.

Results: The uniform size of the nanoparticles was around 150 nm, and their drug loading efficiency was 85%, glibenclamide - loaded nanoparticles showed a regulated release profile. Significant glucose uptake was shown in diabetes cells in vitro, and significant blood glucose decrease was observed with low cytotoxicity and great biocompatibility in vivo.

Conclusion: The developed polymeric nanoparticles effectively encapsulate glibenclamide, offering a controlled release mechanism that improves therapeutic efficacy for diabetes management. This approach has potential for future clinical applications and further research.

Keywords: Antidiabetic Agents, Polymeric Nanoparticles, glibenclamide, Nanotechnology.

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RHS-057

Synthesis Of Silver Nanoparticles Using Neem Leaf Extract

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ABSTRACT:

Aim: The aim of the study was to conduct green synthesis and characterisation of silver nanoparticles using neem leaf extract.

Objective: To biosynthesise silver nanoparticles with antioxidant and antimicrobial activity in a cost effective, ecofriendly and green method.

Methodology: The *Azadirachta Indica* leaf extracts were filtered through Whattman No.1 filter paper to remove particulate matter, get clear solutions. A stock solution of $AgNO_3$ $1*10^{-}1M$ was prepared by dissolving 1.52g/100 ml distilled water. Synthesis of silver nanoparticles: For the synthesis of the silver nanoparticles, 100 ml of 0.1 M aqueous solution of silver nitrate was taken in 500 ml beaker. Then 10 ml of plant extract neem added separately to it at room temperature. The solution was stirred for 20 min.

Results: UV Visible Spectroscopy: Peak absorption at 420 nm, indicating the formation of silver nanoparticles. Absorption intensity increased with time. FTIR: The band at 3400 - 3500 cm^{-1} (O-H Stretching), 2925 cm^{-1} (C-H Stretching) 1754cm^{-1} (C=O Stretching),1050cm^{-1} (C-O Stetching). FTIR measurement for neem leaf extract to identify the presence of various functional groups in the bioreduction of $AgNo2^{+}$ and Ag nanoparticles. The negative zetapotential of nanoparticles from neem leaf is _30.4 mV.

Conclusion: Nanoparticles have already has been applied as a drug delivery system with great success and nanoparticles drug delivery systems have still greater potential for many applications including Anti-tumour therapy, gene therapy, AIDS therapy. The green synthesis of silver nano particles use in neem leaf extract at room temperature was reported in these studies. It proves to be an eco-friendly, rapid green approach for the synthesis providing a cost-effective and an efficient way for the synthesis of silver nanoparticles. The silver nanoparticles synthesis was confirmed by using change in color from light yellow to dark brown.It is also confirmed by UV Visible spectroscopy, FTIR AND zetapotential.

Keywords: *Azadirachta Indica* , leaves extract, Silver nanoparticles, Evaluation and Application.

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RHS-058

Synthesis, Characterization and Biological Evaluation of New Isoxazole Analogues

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ABSTRACT:

Aim: To evaluate a series of isoxazole analogues for their antimicrobial and *invitro* cytotoxicity studies against various microorganism and A375 and A549 cell lines.

Objective: To synthesize new heterocyclic isoxazole derivatives and evaluate their antimicrobial and anticancer activities through comprehensive physical, spectroscopic and biological assays.

Methodology: New isoxazole derivatives have been synthesized from acetyl adamantine with aromatic aldehydes and hydroxylamine hydrochloride in the presence of sodium acetate. The synthesized compounds were confirmed by IR, ^{1}H NMR, Mass spectral and screened for antimicrobial studies by using organism like *S. aureus*, *Bacillus subtilis* for gram + *ve* and *E. coli*, *P. aeruginosa* for gram –*ve* and *invitro* cytotoxicity studies againstA-375 cell line and A-549 cell line by using MTT assay.

Results: A series of substituted Isoxazoles(I_1-I_8) compounds, have been synthesized using appropriate synthetic procedure and structures of newly synthesized compounds were confirmed and characterized by physical data like melting point, TLC and analytical data such as FT-IR, ^{1}H-NMR and Mass spectra. Compound (I_3) and (I_8) showed good activity against gm (+ve) and gm (–ve) bacteria. MTT assay on A375 and A549 cell line the obtained data revealed that all the synthesized compounds proved that having less toxicity compared to standard.

Conclusion: Newly synthesized stilbenes showed good activity against microbial and *invitro* cytotoxicity studies shows good activity due to presence of hydroxy group.

Keywords: Stilbenes, adamantine, antimicrobial activity, cytotoxicity.

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RHS-059

Evaluation of Anti-Ulcer Activity Of *Carica Papaya*

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ABSTRACT:

Aim: The aim of this study was to investigate the anti-ulcer properties of *Carica papaya* root extract using Wistar albino rats. The objectives were to extract and analyze precursor phytoconstituents from *Carica papaya* root, assess the anti-ulcer activity of the root extract in Wistar albino rats, and induce ulcers in animals by utilizing the pylorus ligation method of ethanol-induced ulcers.

Methodology: The *Carica papaya* root extract was prepared and tested for its anti-ulcer activity in Wistar albino rats. The extract was administered orally, and parameters like pH, volume of gastric juice, ulcer index, and percentage of ulcer inhibition were analyzed. The study used a pylorus ligation model for ulcer induction gastric ulcers.

Results: The study found that animals treated with *Carica papaya* root extract showed higher gastric content pH, lower ulcer index and gastric volume, and a higher percentage of ulcer inhibition.

Conclusion: The study concluded that the aqueous *Carica papaya* root extract exhibited significant anti-ulcer properties.

Keywords: *Carica papaya* root extract, Wistar albino rats, Pharmacological study, Biochemical analysis

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RHS-060

Formulation And Evaluation of Herbal Emulgel for Anti-Acne Activity

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ABSTRACT:

Introduction: *Azadirachta Indica* leaf and its fruit oil is an anti-acne activity widely used as an anticipated. It has been traditionally used as anti-bacterial activity. Emulgel is novel drug delivery system that enable the controlled release of emulsion and gel for topical preparation or use.

Aim: The goal of the study to formulate and evaluate the herbal emulgel by using *Azardichta Indica* and *Ficus Religiosa* that had constant active ingredient.

Objectives: To develop and assess the effectiveness of herbal emulgel incorporating neem and peepal extract aiming to combine their therapeutic properties for potential dermatological applications.

Methodology: Mixing an emulsion into gel increases its stability. The current investigation uses emulgel-containing extract of neem leaf, neem fruit oil, and peepal extract to treat bacterial skin infections. Neem leaf contains chemical constituent as Sugiol, Nimbiol, Triterpines, Limonoids, and Nimton. Neem fruit contains Borneol, Limonin and Carveol.

Result: Emulgel are created by combining prepared emulsion by Carbopol and sodium CMC with 1:1 Ratio. Different formulations with different ratio and evaluation parameters such as PH, Physical appearance, spreadability, Anti-bacterial activity were checked. All formulations produced for tested parameter, finally After examining parameters can effectively cure bacterial infection.

Conclusion: Based on the resulting, it appears that using the neem extract for emulgel may be more beneficial option for treating anti-acne activity.

Keywords: Emulgel, Neem leaf, Neem fruit oil, Peepal leaf, Anti-bacterial activity

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RHS-061

Systemic Optimization and Validation of RP-HPLC Method for the Estimation of Ritonavir from Hybrid Polymeric Nanoparticles in Rat Plasma

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ABSTRACT:

Hybrid polymeric materials have been in research focus owing to their outstanding progression in drug targeting. A new Quality by Design approach by RP-HPLC was developed and validated for the estimation of hybrid polymeric nanoparticles of Ritonavir in rat plasma. The main objective of the present study was to develop and validate a simple, robust, and accurate method by QbD approach for the detection of hybrid polymeric nanoparticles of Ritonavir (RTV) in plasma. The mobile phase consisting of a mixture of Acetonitrile: HPLC grade water (60:40 v/v), 1.0 ml/min flow rate and UV detection at 240 nm. Critical Analytical Attributes (CAAs) were screened and selected by Taguchi orthogonal array model. Box-Behnken's three-level, the 3- factorial design, was employed to create and analyze a "Design Space" (DoE). This design was statistically analyzed by ANOVA, contour-plot, and 3D response surfaces plots, which demonstrated that the model was statistically significant. The developed method was validated as per the ICH guidelines Q2 (R1). The developed method showed excellent linearity between 100 and 600 ng/mL with good regression (R2>0.998), LOD (10 ng/mL) and LOQ (30 ng/mL). The validation results of the tested parameters were found within the acceptable limit. From the study, it was concluded that QbD driven bioanalytical method is suitable for the in-vitro and in-vivo estimation of RTV from bulk as well as from hybrid polymeric nanoparticles formulation.

Keywords: Design of Experiments (DoE), hybrid polymeric nanoparticles, ICH Guidelines

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RHS-062

Formulation And Evaluation of *Bacopa Monnieri* Capsules for Memory Booster

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Kamalakshi Pandurangan college of Pharmacy, Ayyampalayam, Tiruvannamalai

ABSTRACT:

Aim: A pill to cure memory loss is the current study's goal. The prepared capsules are assessed in accordance with WHO guidelines.

Objective: Study Using various Column Chromatography techniques to identify the drug *Bacopa monnieri* Isolation and extraction of a component from the complete *Bacopa monnieri* plant and thin-layer chromatography. To incorporate various excipients into the herbal capsule's formulation. To evaluate the herbal capsule using a variety of standards.

Methodology: The study aims to create a memory-enhancing capsule using *Bacopa monnieri* extract, evaluating its physical properties, content uniformity, disintegration time, dissolution rate, and stability, and conducting *in-vitro and in-vivo studies* to assess its memory-enhancing effects.

Results: The formulated *Bacopa monnieri* capsules exhibited uniformity in size, weight, and colour. Content uniformity testing showed consistent distribution of the active ingredient in the formulation. Disintegration time and dissolution rate studies indicated effective release of the active components. Stability testing confirmed the shelf-life of the capsules by AST.

Discussion And Conclusion: *Bacopa monnieri* capsules for memory improvement were successfully formulated and evaluated. Regarding their physical characteristics, homogeneity, release kinetics, stability, and efficacy, According to the study's findings, *Bacopa monnieri* capsules may be a useful tool for improving memory.

Keywords: *Bacopa monnieri*, memory loss booster, ayurvedic medicine.

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RHS-063

Biocompatible and Sustainable Natural Polymers in Drug Delivery and Therapeutics

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ABSTRACT

Aim: To explore the role of natural polymers in pharmaceutical applications, focusing on their biocompatibility, biodegradability, and innovative uses in drug delivery and formulation.

Objective:

- To review various types of natural polymers utilized in the pharmaceutical industry.
- To analyze their applications in drug delivery systems, tissue engineering, and excipients.
- To assess recent advancements and future perspectives in the use of natural polymers in pharmaceuticals.

Methodology: A comprehensive literature review was conducted, examining peer-reviewed articles, industry reports, and case studies. The analysis focused on different natural polymers, including polysaccharides, proteins, and polyesters, and their specific applications in pharmaceutical technologies. Emphasis was placed on recent innovations, including the development of hydrogels, nanoparticles, and other advanced drug delivery systems.

Results: Natural polymers such as starch, cellulose, chitosan, gelatin, and albumin have been identified as critical components in modern pharmaceuticals. These polymers are effective in creating controlled and targeted drug delivery systems, enhancing therapeutic efficacy, and minimizing side effects. Recent advancements include the development of novel hydrogels and nanoparticles for precise drug delivery and improved wound healing properties.

Conclusion: Natural polymers offer significant benefits in the pharmaceutical industry due to their biocompatibility and sustainability. They are integral to the development of advanced drug delivery systems and other pharmaceutical applications. Continued research and innovation in natural polymers are expected to drive further advancements in drug delivery technologies and support the industry's move towards more sustainable and eco-friendly practices.

Keywords: Natural Polymers, Pharmaceutical Applications, Biocompatibility, Biodegradability, Drug Delivery Systems

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RHS-064

Anti-Ulcer Activity on The Leaves of *Lawsonia Inermis* Linn

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ABSTRACT:

Aim: This study is aimed to investigate the antiulcer activity on the leaves of *Lawsonia inermis Linn.*

Objective: To establish the antiulcer activity using aqueous, chloroform and ethanolic extract of leaves of *Lawsonia inermis Linn.*

Methodology: The research involved a comprehensive methodology that included the collection of *Lawsonia inermis* leaves, extraction of bioactive compounds, and evaluation of antiulcer potential through in vivo tests (pylori ligation rat model).

Results and discussion: It indicated significant antiulcer properties in the extract (aqueous, chloroform, ethanol) supported by various parameters such as ulcer index reduction and histopathological changes. The leaves of *Lawsonia inermis* derives that alkaloids,tannins,and glycosides are present in the extract which may possibly responsible for the pharmacological action. The discussion delved into the mechanisms of action behind these findings, suggesting that the bioactive compounds in *Lawsonia inermis* leaves play a crucial role in mitigating ulcer formation.

Conclusion: The pharmacological study of ethanol extract has significant antiulcer activity and aqueous, chloroform extract has less antiulcer activity. In conclusion, this study highlights the potential of *Lawsonia inermis* as a natural remedy for ulcer management, paving the way for further exploration and development in the field of herbal medicine.

Keywords: Anti-ulcer, *Lawsonia inermis*, histopathology

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RHS-065

In-Silico Antidiabetic Activity of *Morinda citrifolia* Through Activation of Adiponectin Receptor

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ABSTRACT:

Aim: To investigate the antidiabetic potential various phytoconstituents from *Morinda citrifolia* through Adiponectin receptor activation.

Objective: To predict the potential antidiabetic effects of *Moinda Citrifolia* through activation of adiponectin receptor.

Methodology: The adiponectin receptor -1 (6ks0) and adiponectin receptor (6ks1) downloaded from Protein Data Bank (PDB) and prepared in Auto dock Tools 1.5.7. Ligands were downloaded from PubChem Database and prepared in Auto Dock Tools 1.5.7. Configuration files were created for both proteins by setting suitable Cartesian coordinates to generate Grid box. Docking was performed using Auto Dock Vina.

Results: In this study, we investigated adiponectin receptor agonist activity of various phytoconstituents from *Morinda Citrifolia*. We analyze binding energy of those compounds with adiponectin-1 and adiponectin-2 receptor using Auto dock vina. In this study, the phytoconstituents have affinity ranges between -4.9 Kcal/mol to 11.1 Kcal/mol. From which 3-hydroxy morindone,Anthragallol, Asperuloside Beta carotene, Damnacanthal, Limonene, Morindine, Morindone, Nardamncanthal were have higher affinity towards both Adiponectin-1 and Adiponectin-2 Receptors.

Conclusion: The phytoconstituents 3-hydroxy Morindone, Alizarin, Anthragallol 1,2 dimethyl ether, Beta carotene, Campesterol, Asperuloside, Stigmasterol, Damnacanthal, Morindine, Morindone, Nardamncanthal from *Morinda Citrfolia* shown antidiabetic potential through adiponectin mimic effects.

Keywords: *Morinda citrifolia*, Adiponectin, Molecular Docking

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Evaluation of Anti-Anxiety Activity of Aerial Parts of *Justicia Tranquebariensis*

RHS-066

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Abstract:

Aim:

The aim of this study is to evaluate the antianxiety activity of the aerial parts of *Justicia tranquebariensis* in albino mice.

Objective:

The objective is to assess the anxiolytic effects of the aerial parts *Justicia tranquebariensis* through experimental testing.

Methodology:

Collection of Aerial Parts: Aerial parts of *Justicia tranquebariensis* were collected and processed.

Preparation of Extract: Extraction of active compounds from the plant material was carried out using a suitable ethanolic solvent.

Animal Model: An animal model, such as albino mice, was used to test the antianxiety effects.

Experimental Design: Animals were divided into control and treatment groups. The extract was administered in appropriate doses (100,200,400mg/kg).

Behavioral Tests: Standard behavioral tests like Elevated Plus Maze were performed to assess anxiety levels.

Data Analysis: One way Analysis of Variance (ANOVA) followed by Dunnet's test was conducted to determine the significance of the effects.

Results:

Behavioral Changes: Animals treated with the extract showed decreased anxiety- like behaviors compared to the control group.

Statistical Significance: The results were statistically significant, indicating the potential anxiolytic effects of *Justicia tranquebariensis*

Conclusion:

The research suggests that the aerial parts of *Justicia tranquebariensis* possess antianxiety properties.

Keywords:

Anti-anxiety, *Justicia traquebariensis*, Elevated Plus Maze

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Phytopharmacological evaluation of *Bryonia Seabra*

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RHS-067

Abstract:

Aim: This study aimed to conduct a phytopharmacological evaluation of *Bryonia Seabra*, focusing on its potential medicinal properties for the treatment of inflammation, pain and swelling.

Objective: The objectives were to analyze the phytochemical composition, pharmacological activities, and possible therapeutic uses of this crude extract.

Methodology: *Bryonia Seabra* samples were collected, phytochemicals extracted, and pharmacognostical studies and in vitro screening were conducted as part of the methodological studies such as Antibacterial activity, Invitro Anti-arthritic activity, Invitro Anti-inflammatory activity

Results: The research on *Bryonia Seabra* has unveiled its remarkable pharmacological potential, positioning it as a promising candidate for therapeutic applications across a spectrum of medical conditions. The activity studies conducted on *Bryonia Seabra* have revealed compelling antibacterial, anti-arthritic, and anti-inflammatory properties, underscoring its significance in the realm of natural medicine. These findings signify the importance of in-depth exploration.

Conclusion: *Bryonia Seabra* shows great promise as a natural source of pharmacologically active compounds with potential therapeutic applications. Further research is warranted to fully elucidate its mechanisms of action and explore its clinical utility in the field of herbal medicine.

Keywords: *Bryonia Seabra*, anti-arthritic, Antibacterial, Anti-inflammatory.

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Formulation and Evaluation of Novel Pantoprazole Nanoparticles

RHS-068

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Abstract:

Aim: To Develop and assess novel pantoprazole nanoparticles to enhance drug delivery efficacy. Objectives: Optimize formulation to improve drug encapsulation, regular dose frequency better patients' complaint reduce dose size and release characteristics of pantoprazole.

Methodology: Advancement in nanoparticle-based pharmaceutical formulations with potential therapeutic benefits for pantoprazole applications. Preformulation Studies: Conducted to understand the physicochemical properties of pantoprazole and identify the most suitable formulation. Characterization Studies: Included particle size analysis, drug-loading capacity determination, and surface morphology examination to ensure the quality of the nanoparticles. Preparation Methods for Pantoprazole Tablets: Utilized a specific technique involving nanoprecipitation or emulsion-solvent evaporation to prepare the pantoprazole nanoparticles.

Results: Pantoprazole nanoparticles have been successfully synthesized, showing enhanced drug-loading capacity and sustained release profiles. Characterization studies confirm improved bioavailability and stability of pantoprazole in nanoparticle form. This advancement holds promise for more effective and efficient delivery of the medication.

Conclusion: Pantoprazole nanoparticles present a promising drug delivery system for treating acid-related disorders more effectively. Their enhanced properties, such as improved drug-loading capacity and sustained release profiles, can lead to better outcomes in managing conditions like acid reflux and ulcers. This innovation holds significant potential in improving patient care.

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RHS-069

Evaluation of anti-diabetic activity on *Marsilea minuta l* against alloxan induced diabetes in albino rats

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Abstract:

Diabetes mellitus, often simply referred to as diabetes, is a group of metabolic diseases in which a person has high blood sugar, either because the body does not produce enough insulin, or because cells do not respond to the insulin that is produced. To investigate antidiabetic activity of ethanolic leaf extract of *Marsilea Minuta L* .in alloxan induced diabetic wistar albino rats. The Powdered Plant material (200g) was extracted by hot continuous soxhlet extraction using as a solvent. The ethanolic leaf extract of *Marsilea minuta* shows significant antidiabetic and anti-hyperlipidaemic properties through in alloxan induced diabetic Wistar albino rats.

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COMPARATIVE STUDY ON PHOLCID SPIDER's WEB OINTMENT WITH CONVENTIONAL OINTMENT – A REVIEW

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RHS-070

Abstract:

Aim:

The purpose of this review is to show the efficacy of Pholcid spider's web and compare its efficacy with conventional ointment.

Methodology:

This review was produced by looking through a number of published articles and literature reviews. The databases that are used are Web of science, PubMed, and Google Scholar. The pertinent information regarding the pholcid spider's web that is part of this review was taken from ten publication.

Result:

The Protein like substance found in pholcid spider webs, known as Spidroins, directs the wound discharge away from the site of injury. Thus, it has wound healing process with spider web between 8-24 hours. In the linear incision wound model, spider web ointment at 2.5% w/w showed 30.65 % increased in tensile strength compared to normal healing. The spider web ointment has higher scores in re-epithelization and neovascularization. Both of the concentration of spider web ointment (2.5% & 5%) w/w. So, it has good wound healing property compared to other ointments.

Conclusion:

From the study, it provides a scientific base for the traditional use of spider web for wound healing, it was observed that the healing of injury by using spider web was 70% faster than healing by using conventional ointment. Self-healing process are faster than other ointments. Additionally, it has clotting activity by the presence of vitamin K and also have anti-bacterial activity. Thus, these studies provide a valuable information for researchers for the further clinical studies.

Keywords:

Spider web, ointment, wound healing, re-epithelization and neovascularization, clotting

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Formulation and Evaluation of Herbal Lipstick Using Various Natural Colors

RHS-071

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ABSTRACT:

Aim: This study focused on the formulation and evaluation of a herbal lipstick using various natural colors. The aim was to create a lipstick product that is free from synthetic dyes and chemicals, utilizing only natural ingredients.

Objective: The objectives included selecting suitable natural colors, formulating the lipstick, evaluating its physical characteristics and performance, and comparing it with conventional lipsticks.

Methodology: The methodology involved sourcing natural colors from herbs and plants, formulating the lipstick with these colors, conducting various tests such as color intensity, texture, and longevity, and gathering feedback from users. Results indicated that the herbal lipstick performed well in terms of color vibrancy and texture, with users appreciating the natural ingredients and suitable fragrance.

Discussion: The discussion highlighted the significance of using natural colors in cosmetics and the potential benefits for consumers, such as reduced exposure to harmful chemicals.

Conclusion: The conclusion emphasized the feasibility and desirability of herbal lipsticks as a healthier alternative to traditional products, advocating for further research and development in this area to meet consumer demands for natural and sustainable cosmetics.

Key Words: Herbal Lipstick; Natural Colors; Cosmetics.

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RHS-072

WOUND HEALING POTENTIAL OF INDIGOFERA ENNEAPHYLLA

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ABSTRACT:

Aim: To evaluate the wound healing potential of the ethanolic extract of Indigofera enneaphylla (EEIE) whole plant using excision and incision wound models in rats, comparing its efficacy with soframycin skin cream as a standard treatment.

Methodology: Ethanolic extract of Indigofera enneaphylla (EEIE) has been examined for its wound healing activity by utilizing couple of wound models in rats: (1) excision wound model and (2) incision wound model following application of standard or extract topically. Animals have been categorized into 4 groups with 6 in every group. Group 1 left untreated, Group 2 received soframycin skin cream as standard Group 3 & amp;4 received 100mg and 200mg of ethanolic extract of Indigofera enneaphylla whole plant.

Results: Results obtained upon treatment with the plant extract groups shown activity close to standard drug activity, Soframycin, in terms of wound contraction ability, time taken for wound closure and tensile strength. 200mg of plant extract has produced better wound healing ability after comparing to another dose.

Conclusion: The obtained results notified that Indigofera enneaphylla swifts the wound healing process by reducing wound surface area and enhancing wound tensile strength.

Keywords: Indigofera enneaphylla (EEIE); Soframycin.

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RHS-073

Formulation And Evaluation of *In-Situ* Gel Zidovudine Floating Tablets

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ABSTRACT:

Aim: This study developed and evaluated an *In-Situ* gel zidovudine floating tablet formulation for HIV treatment, aiming to optimize its floating behavior, drug release kinetics, physical properties, and stability for effective, safe, and sustained delivery.

Methodology: *In-Situ* Gel floating tablets, formulated with polymers like xanthan gum and HPMC, maintain buoyancy in gastric fluids. Physical properties were evaluated, including hardness, thickness, and weight variation. Buoyancy studies confirmed tablet stability, while swelling index assessed structural integrity. *In vitro* drug release studies and kinetic modeling were conducted.

Results: The tablets demonstrated effective floating behavior, extended stomach retention, extended drug release, and met required standards for extended therapeutic zidovudine levels, maintaining effectiveness and safety throughout their shelf life.

Conclusion: The formulation evaluation confirmed that *in-situ* Gel zidovudine floating tablets effectively achieve extended gastric residence and controlled drug release, meeting HIV treatment goals for improved drug delivery and patient adherence.

Keywords: Total laparoscopic hysterectomy; salphingoophrectomy; pharmaceutical care.

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Development and characterization of Fexofenadine hydrochloride oil entrapped floating Alginate beads to Enhance oral bioavailability

RHS-074

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Abstract:

Aim: To develop and characterize fexofenadine hydrochloride oil entrapped floating alginate beads that would benefit oral drug delivery systems, emphasizing controlled release systems for improved drug bioavailability and reduced dosing frequency.

Objectives: To overcome the narrow absorption of drug in the gastrointestinal tract. To enhance the gastroretention time including floating systems, swelling and expanding systems, bioadhesive systems, and high-density systems.

Methodology

Ionotropic Gelation Method

Sodium alginate is used to form gel beads in the presence of calcium chloride, enhancing the drugs retention and release properties.

Emulsion Gelation Method

Involves forming an emulsion of sodium alginate and oil, which is then gelled using calcium chloride to create floating beads.

Formulation and Evaluation: The project evaluates the prepared beads for parameters such as buoyancy, drug entrapment efficiency, and release profiles. Various oils and their concentrations are tested to optimize the bead characteristics.

Results and Discussion: The developed formulation was more effective in enhancing the bioavailability of Fexofenadine Hydrochloride. Detailed analysis of the drug release mechanism and the impact of different formulation variables were carried out to validate the developed formulation.

Conclusion: The study concluded that the optimized floating alginate beads can significantly enhance the bioavailability of Fexofenadine Hydrochloride, offering a promising approach for its controlled and prolonged delivery in the gastrointestinal tract.

Key Words

Fexofenadine HCL, Floating alginate beads, Gastroretentive drug delivery, Oral bioavailability

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Enhanced topical treatment of cataract using Resveratrol loaded self-assembled nanomicelles

RHS-075

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Abstract:

Aim: This study aimed to develop and characterize resveratrol-loaded self-assembled nanomicelles for improved topical delivery and anti-cataract activity.

Methodology: Nanomicelles were prepared using combination of drug, polymer and surfactant with varying hydrophobic block lengths. Resveratrol was encapsulated within the micellar core, and the physicochemical properties of the formulations, including size, surface charge, encapsulation efficiency, drug content, in vitro release and ex-vivo corneal, scleral permeation, histopathological and toxicity study were evaluated.

Results: Resveratrol-loaded nanomicelles were successfully prepared with narrow particle size distributions, suitable surface charges, and high encapsulation efficiencies. The nanomicelles possess the transparent nature, neutral pH, acceptable level of drug content, in-vitro drug release and ex-vivo corneal, scleral permeation. The nanomicelles exhibits optimum toxicity level leading to a safe and effective non-surgical therapeutic approach for cataract management

Conclusion: Hence the developed resveratrol-loaded self-assembled nanomicelles have the promising platform for the topical treatment of cataract.

Keywords: Cataract, Resveratrol, Nanomicelles, Topical delivery, In-vitro drug release, Ex-vivo Corneal, Scleral permeation, Histological study, Toxicity assessment.

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Development and Evaluation of Curcumin-Coated Non-Absorbable Suture Material for Reduction of Bacterial Load: In – Vitro Assessment

RHS-076

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Abstract:

Background: Approximately 0.5% to 3% of patients undergoing surgery will experience infection at or adjacent to the surgical incision site. Compared with patients undergoing surgery who do not have a surgical site of infection, those with a surgical site infection [SSI] are hospitalized approximately 7 to 11 days longer. *Staphylococcus aureus, Staphylococcus epidermidis, Escherichia coli, Pseudomonas aeruginosa, Acinetobacter species* and *Enterococcus species* are common organism isolated from patients with SSI. Most surgical site infections can be prevented if appropriate strategies are implemented. A variety of suture material has been used in surgery. Surgeons must select the optimal suture materials for tissue approximation to maximize wound healing and scar aesthetics. Curcumin a polyphenolic compound derived from the rhizome of *Curcumin longa* (turmeric) has been extensively studied for its remarkable anti- inflammatory, antioxidant, and anti-microbial properties. Curcumin is one such antimicrobial agent that can be incorporated into a suture to prevent SSI. The aim of the study is to prepare and evaluate the efficacy of curcumin coated sutures on bacterial load reduction to prevent SSI.

Methods: The first step is selection of the suture material and the suture material is coated with chemicals. The coated chemicals were removed off by the process of scouring. It is coated with polymer chitosan by standard procedure and further resultant polymer coated suture is dipped into the curcumin solution for 24hours and dried. It was cut into small pieces
and evaluated for anti-bacterial activity.

Results: In this study, *Mersilk* (braided silk black), a non -absorbable suture was coated with curcumin. And the thickness of the suture was found to increase with 0.02- 0.04cm after coating. Zone of inhibition around every suture against salivary microflora was measured. Curcumin coated suture is having antibacterial efficacy against salivary microflora than the synthetic coated sutures. And the curcumin coated material which is less cost than the order commercialized sutures and it doesn`t shows any toxic effect.

Conclusion: Curcumin coated suture is more efficacious than the synthetic material coated suture to reduce bacterial load and further prevent SSIs. However, in- vivo clinical trial is must to prove the same.

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Polymeric Nanoparticles for drug delivery; recent development a review

RHS-077

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Abstract:

The complexity of some diseases—as well as the inherent toxicity of certain drugs—has led to an increasing interest in the development and optimization of drug-delivery systems. Polymeric nanoparticles stand out as a key tool to improve drug bioavailability or specific delivery at the site of action. The versatility of polymers makes them potentially ideal for fulfilling the requirements of each particular drug-delivery system.

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Liposomal drug delivery system in cancer treatment: A Review

RHS-078

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Abstract:

Liposomes have been considered promising and versatile drug vesicles. Compared with traditional drug delivery systems, liposomes exhibit better properties, including site-targeting, sustained or controlled release, protection of drugs from degradation and clearance, superior therapeutic effects, and lower toxic side effects. Given these merits, several liposomal drug products have been successfully approved and used in clinics over the last couple of decades. Liposomes are self-assembled (phospho)lipid-based drug vesicles that form a bilayer (uni-lamellar) and/or a concentric series of multiple bilayers (multilamellar) enclosing a central aqueous compartment. The size of liposomes ranges from 30 nm to the micrometer scale, with the phospholipidbilayer being 4–5 nm thick.

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Bioinspired Pattern to Improve the Mucoadhesion of Polymeric Patch on Ocular Disease Treatment

RHS-079

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Abstract:

Aim: To review the current advancements in bioinspired patterns aimed at enhancing the mucoadhesion of polymeric patches for ocular disease treatment.

Objective: The review aims to summarize the latest research on bioinspired designs that improve mucoadhesion in polymeric ocular patches, highlight their mechanisms, and evaluate their effectiveness in ocular drug delivery.

Methodology: A comprehensive literature search was conducted using databases such as PubMed, Scopus, and Web of Science. Studies focusing on bioinspired patterns for mucoadhesion in polymeric patches were selected. The selected articles were analyzed to understand the design principles, materials used, fabrication techniques, and evaluation methods. Comparative analyses of mucoadhesive properties, retention times, and therapeutic outcomes were performed.

Results: The review found that bioinspired patterns, such as microstructures mimicking gecko feet and tree frog toe pads, significantly enhance mucoadhesion. These patterns increase surface contact and interfacial interactions with the mucosal surface, leading to improved retention and sustained drug release. Studies consistently showed that bioinspired patches had better adhesion and therapeutic efficacy compared to traditional patches. The reviewed articles also highlighted the importance of biocompatible materials and optimal pattern dimensions in achieving desired outcomes.

Conclusion: Bioinspired patterns are a promising strategy for improving the mucoadhesion of polymeric patches in ocular disease treatment. Enhanced adhesion leads to better drug retention and therapeutic outcomes, potentially reducing the frequency of application and improving patient compliance. Further research is needed to refine these designs and translate them into clinical applications.

Keywords: Bioinspired pattern, mucoadhesion, polymeric patch, ocular disease, drug delivery, biocompatible materials, sustained release.

ISBN:978-81-972486-4-1

Synthesis and invitro cytotoxicity of novel Stilbene derivatives studies

RHS-080

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Abstract:

Aim: To evaluate the membrane stabilization activity of 7-methoxy coumarin (Herniarin) isolated from ethyl acetate fraction of the alcoholic extract of Eupatorium triplinerve Vahl.

Methodology: Phytochemical studies: The shade dried leaves of E. triplinerve were extracted with ethyl alcohol and the extract was condensed. This extract was fractionated with n- hexane, ethyl acetate, and n-butanol. The ethyl acetate fraction was subjected to column chromatography which yielded a crystalline compound-A, which was investigated for spectral characteristics. Pharmacological studies The membrane-stabilizing property of 7- methoxycoumarin was studied using its ability to reduce the levels of emolysis of human red blood cells (RBC) exposed to hypotonic solution.

Results: The spectral studies indicated that the structure of compound-A complies with 7- methoxy coumarin. At a concentration range of 10µg/ml -500µg/ml the 7- methoxycoumarin offered significant protection of RBC against the hemolytic effect of hypnotic solution an indication of membrane stabilization activity.

Conclusion: It appears that the membrane –stabilizing effect has contributed a significant role to its anti-inflammatory activity.

Keywords: Stillbene derivatives, Cytotoxicity, MTT assay

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Comparative Study of Tapioca Starch-Based Films with Zinc Oxide Nanoparticles for Enhanced Food Packaging of Unsweetened Milk Solids

RHS-081

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Abstract:

Food packaging plays a crucial role in maintaining the safety, quality, and shelf life of food products. It serves as a barrier against environmental factors such as moisture, oxygen, and light, which can cause spoilage and degradation of food. Advances in food packaging technologies, including the development of active and intelligent packaging, have significantly enhanced the ability to monitor and extend the freshness of food. In this research work two types of food packaging films P1 (Tapioca starch based film) and P2 (Tapioca starch film with addition of Zinc oxide nanoparticles) were developed. Low density polyethene film (LDPE) was used as control food packaging material. These films were used as food packaging material for unsweetened milk solids. The unsweetened milk solids were initially tested for proximate analysis and microbial load. Post storage at 4°C for 25 days the tests were repeated to test the effect of packaging conditions on the proximate and microbial content. From the study, food packaging film P2 was found to retain the nutrient content and have more anti-microbial activity followed by P1 food packaging film.

Key words: Tapioca starch films, Zinc oxide nanoparticles, unsweetened milk solids, food packaging films.

ISBN:978-81-972486-4-1

Harnessing Biological Rhythms: Innovations and Future directions in Pulsatile Drug Delivery

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RHS-082

Aim

The aim of this review is to explore pulsatile drug delivery systems (PDDS) and their potential to enhance therapeutic efficacy and safety by synchronizing drug release with the body's natural biological rhythms.

Objectives

The objectives include examining the mechanisms and types of PDDS, highlighting formulation strategies, discussing applications and benefits, and identifying challenges and future research opportunities.

Methodology

The methodology involves a comprehensive analysis of current literature, including peer-reviewed articles, clinical trials, and reviews focused on the design and application of PDDS.

Results and Discussion

Results indicate that PDDS provide significant advantages over conventional systems by improving efficacy, reducing side effects, and enhancing patient compliance through time-controlled release. Various PDDS types, such as capsule-based systems and osmotic pumps, allow for precise drug delivery, while formulation strategies like polymeric coatings and hydrogels are essential for their effectiveness. Despite these advantages, challenges such as formulation complexity, scalability, regulatory hurdles, and cost remain. However, advances in nanotechnology and personalized medicine present promising solutions.

Conclusion

In conclusion, PDDS represent a major advancement in drug delivery by aligning with biological rhythms, and ongoing research is crucial to overcoming existing barriers and fully realizing their potential in treating chronic and acute conditions.

Keywords

Pulsatile Drug Delivery Systems, Chronotherapy, Formulation Strategies, Biological Rhythms, Time-Controlled Release, Patient Compliance, Nanotechnology, Personalized Medicine.

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Transformative Impact of Oral Semaglutide (Wegovy) in Diabetes and Obesity Management

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RHS-083

Aim

The aim of this review is to explore pulsatile drug delivery systems (PDDS) and their potential to enhance therapeutic efficacy and safety by synchronizing drug release with the body's natural biological rhythms.

Objectives

The objectives include examining the mechanisms and types of PDDS, highlighting formulation strategies, discussing applications and benefits, and identifying challenges and future research opportunities.

Methodology

The methodology involves a comprehensive analysis of current literature, including peer-reviewed articles, clinical trials, and reviews focused on the design and application of PDDS.

Results and Discussion

Results indicate that PDDS provide significant advantages over conventional systems by improving efficacy, reducing side effects, and enhancing patient compliance through time-controlled release. Various PDDS types, such as capsule-based systems and osmotic pumps, allow for precise drug delivery, while formulation strategies like polymeric coatings and hydrogels are essential for their effectiveness. Despite these advantages, challenges such as formulation complexity, scalability, regulatory hurdles, and cost remain. However, advances in nanotechnology and personalized medicine present promising solutions.

Conclusion

In conclusion, PDDS represent a major advancement in drug delivery by aligning with biological rhythms, and ongoing research is crucial to overcoming existing barriers and fully realizing their potential in treating chronic and acute conditions.

Keywords

Pulsatile Drug Delivery Systems, Chronotherapy, Formulation Strategies, Biological Rhythms, Time-Controlled Release, Patient Compliance, Nanotechnology, Personalized Medicine.

ISBN:978-81-972486-4-1

Method of development and validation of elemental impurity (Osmium) in clarithromycin by ICPMS

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RHS-084

Aim: This study aimed to develop and validate a method for the determination of osmium content in clarithromycin active pharmaceutical ingredient (API), in compliance with new USP and ICH guidelines on elemental impurities

Objective: The objective was to establish a robust analytical procedure using inductively coupled plasma mass spectrometry (ICP-MS) to quantify osmium.

Methodology: Clarithromycin API samples were digested using a microwave-assisted acid digestion method with a nitric acid to hydrochloric acid ratio of 0.5:4.5 ml. Analysis was performed using ICP-MS without the use of internal standards. The method was validated for linearity, precision, accuracy, (LOD), (LOQ), and ruggedness.

Results: The developed method demonstrated satisfactory performance across all validation parameters, meeting the criteria set forth by USP and ICH guidelines. The osmium content in clarithromycin API samples was accurately quantified, confirming compliance with regulatory limits for elemental impurities.

Conclusion: This study successfully established a reliable method for the determination of osmium content in clarithromycin API, essential for ensuring compliance with updated regulatory requirements.

Keywords: Clarithromycin, Osmium, Elemental Impurities, Inductive coupled plasma mass spectrometry, Method Development, Method Validation

ISBN:978-81-972486-4-1

RHS-085

Revolutionizing Healthcare and Drug Discovery: The Impact of Artificial Intelligence on Pharmaceutical Development

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Aim: This review delves into the profound impact of artificial intelligence (AI) on drug discovery and delivery within the pharmaceutical sector, highlighting its transformative potential.

objective: The primary objective is to elucidate the multifaceted roles of AI in pharmaceutical development. Specifically, it explores how AI optimizes drug discovery by leveraging large datasets to predict compound efficacy and safety. Furthermore, it discusses AI's crucial role in enhancing drug delivery through the implementation of precision medicine strategies.

Methodology: Through an exhaustive analysis of current literature and pertinent case studies, this review thoroughly examines how AI algorithms are revolutionizing drug development processes and refining drug delivery mechanisms.

Results: AI-driven advancements have fundamentally transformed drug discovery by significantly expediting the identification of potential drug candidates and facilitating innovative drug repurposing efforts. These technological breakthroughs promise more effective and tailored treatment options for various medical conditions. In the realm of drug delivery, AI plays a pivotal role in optimizing formulation techniques, thereby enabling personalized therapeutic approaches that enhance treatment efficacy and patient care outcomes.

Conclusion: Despite challenges such as regulatory complexities and concerns over workforce displacement, AI stands at the forefront of revolutionizing pharmaceutical development. Its integration not only promises heightened efficiency and innovation but also represents a crucial step towards achieving personalized medicine and optimizing drug delivery systems for enhanced patient outcomes.

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