"Recent Status in Pharmacy Education, Research and Newer Job Opportunities"

12th and 13th Day of November 2022

Organized by

BCDA College of Pharmacy & Technology

In Association with

APTI, Bengal Branch

at

Krishti Auditorium, New Barrackpore

and

BCDA College of Pharmacy & Technology

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Recent Status in Pharmacy Education, Research and Newer Job Opportunities

National Conference on "Recent Status in Pharmacy Education, Research and Newer Job Opportunities"

12th and 13th November, 2022

Organized by:
BCDA College of Pharmacy & Technology, Hridaypur
In Association with APTI, West Bengal Branch

Conference Proceedings

BCDA College of Pharmacy & Technology, Hridaypur
78, Jessore Road (S), Barasat, Kolkata – 127.
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National Conference on "Recent Status in Pharmacy Education, Research and Newer Job Opportunities"

Organized By:

BCDA College of Pharmacy & Technology, Hridaypur

In Association with APTI, West Bengal Branch

Venue for 12th November2022

Krishti Auditorium; Near to New Barrackpore Railway Station (sided at platform no. 2); New Barrackpore, Kolkata – 700 131.

Venue for 13th November2022

BCDA College of Pharmacy & Technology, Hridaypur;
78, Jessore Road (South); Barasat; Kolkata – 700 127.

Contents:

Programme Schedule

DAY-1: 12th November, 2022(Saturday)

***Venue*: Krishti Auditorium; Near to New Barrackpore Railway Station (sided at platform no. 2); New Barrackpore, Kolkata – 131.**

9:00 AM : Registration

10:00 AM : Inaugural Programme

11:00 AM : Tea Session

11:15 AM : Scientific Session – I

12:15 PM : Scientific Session – II

1:15 PM : Lunch Break

2:30 PM : Scientific Session – III

3:30 PM : Scientific Session – IV

4:30 PM : Tea session

DAY-2: 13th November, 2022 (Sunday)

***Venue*: BCDA College of Pharmacy & Technology, Hridaypur; 78, Jessore Road (South); Barasat; Kolkata – 127.**

10:00 AM : Poster & Oral Presentation

11:15AM : Tea session

2:00 PM : Lunch Break

3:00 PM : Valedictory Session & Prize Distribution

4:30 PM : Tea session

APTI NATIONAL COMMITTEE MEMBERS

1. ***Prof. (Dr.) Milind Umekar,*** **President, APTI, India**
2. ***Dr. Mihir Kumar Kar,*** **APTI, Vice President (Eastern zone)**
3. ***Dr. Raman Dang,*** **Secretary APTI, India**
4. ***Dr. Vandana Patravale,*** **APTI National Convenor Women Forum**

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2. **Patrons:**
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   Dr. Kamalika Mazumder, Assistant Professor, BCDACPT, Hridaypur
6. **Coordinators:**
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   Dr. Koyel Kar, Assistant Professor, BCDACPT, Hridaypur
7. **Joint Coordinator:**
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8. **Technical Coordinators:**
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   Mr. Alakesh Debnath, Assistant Professor, BCDACPT, Hridaypur
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9. **Treasurer:**
   Mr. Pallab Dasgupta, Assistant Professor, BCDACPT, Hridaypur
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10. **Accounts:**
    Mr. Pradip Kumar Sahoo, Accountant, BCDACPT, Hridaypur

11. Scientific Committee:

Ms. Priyanka Chakraborty, Assistant Professor, BCDACPT, Hridaypur
Dr. Debanjan Sen, Assistant Professor, BCDACPT, Hridaypur

***Sub Committee*:**

Ms. Dipanjana Ash, Assistant Professor, BCDACPT, Hridaypur
Ms. Saswati Tarafdar Sasmal, Assistant Professor, BCDACPT, Hridaypur
Ms. Subhra Dan, Assistant Professor, BCDACPT, Hridaypur
Mr. Abani Roy, Assistant Professor, BCDACPT, Hridaypur
Mr. Bapan Maity, Laboratory Technician, BCDACPT, Hridaypur
Mr. Gourab Banik, Office Staff, BCDACPT, Hridaypur
Mr. Dwaipayan Sarbajna, Laboratory Technician, BCDACPT, Hridaypur

12. Hospitality Committee:

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Mr. Sanjiban U. Sarkar, Assistant Professor, BCDACPT, Hridaypur

***Sub Committee*:**

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Ms. Arna Pal, Assistant Professor, BCDACPT, Hridaypur
Ms. Chaitali Mazumder, Laboratory Assistant, BCDACPT, Hridaypur
Mr. Abhijit Pal, Office Staff, BCDACPT, Hridaypur
Mr. Atanu Das, Office Staff, BCDACPT, Hridaypur
Mr. Prasenjit Roy, Office Staff, BCDACPT, Hridaypur
Mr. Anowar Hossain Molla, Laboratory Technician, BCDACPT, Hridaypur
Mr. Basudeb Mondal, Library Assistant, BCDACPT, Hridaypur

***Decoration*:**

Mr. Aakash Saha, Assistant Professor, BCDACPT, Hridaypur
Mr. Avisek Chaterjee, Assistant Professor, BCDACPT, Hridaypur
Mr. Kalyan Das, Office Staff, BCDACPT, Hridaypur

13. Registration Committee:

Ms. Smita Patra, Assistant Professor, BCDACPT, Hridaypur
Mr. Arjun Kumar Sen, Assistant Professor, BCDACPT, Hridaypur

***Sub Committee*:**

Ms. Sohini Sen, Assistant Professor, BCDACPT, Hridaypur
Ms. Jayeeta Saha, Assistant Professor, BCDACPT, Hridaypur
Ms. Anusree Basu, Assistant Professor, BCDACPT, Hridaypur
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Mr. Arindam Dey, Assistant Librarian, BCDACPT, Hridaypur
Ms. Pinki Kundu, Library Assistant, BCDACPT, Hridaypur

From the Desk of Chairman's Governing Body……

Message

It's a matter of pleasure to know that one of BCDA campuses of Pharmacy is heading towards having a national conference on issues relevant to the study in Pharmacy.
I wish all success for the program.

Pharmaceuticals have occupied a great role now in the world of academics and research. The world needs new vision and new areas of exploratory and penetrative research into different areas now.

During the last few decades, areas of research have gone beyond traditional boundaries of pharmacy. Certain areas have gone deeper into the search of predictive Pharmaceuticals, whereas areas of remedial supports have diversified with the active involvement of technology. The role of Neural Networks, Broader areas of artificial intelligence, Nuclear Robotics, Cellular Fusions, and many other areas have actually come before the world of Pharmaceuticals to go along with it and get deeply involved With.

It is in this context, research or at least academic sensitization on the need for research becomes pivotal.

It's good that BCDA has taken up the relevant issues for the conference.

Once again I convey my BEST WISHES FOR ITS SUCCESS.

Thanks,

Rama Prosad Banerjee

(Prof. (Dr.) Rama Prosad Banerjee)
Chairman, BOG

From the Chairman's Desk……

Message

I am elated to know that our college, BCDA College of Pharmacy & Technology, Hridaypur, is going to organize a national conference on "Recent Status in Pharmacy Education, Research and Newer Job Opportunities". We always encourage this kind of conference from our side and believe that this conference will certainly play a special role in improving the quality of pharmacists in the coming days.

Thanks to the organizing committee and all the participants. Wishing every success of this seminar.

Sajal Gangopadhyay

(Mr. Sajal Gangopadhyay)
Chairman
BCDA Members Benevolent Trust

From the Managing Trustee's Desk……

Message

It is quite gratifying to note that our BCDA College of Pharmacy & Technology, Hridaypur, is hosting its National Conference on "Recent Status in Pharmacy Education, Research and Newer Job Opportunities"on 12th and 13th November, 2022.

Organizing such an event at this amount of time reinforces our objective of developing Pharmacists in the near future. I am sure that this occasion will provide an affable environment for the researchers and academicians to freely exchange the news and idea with others.

I convey my warm greetings and felicitations to the organizing committee and the participants and extend my best wishes for the success of the conference.

(Mr. Sankha Roy Chowdhury)
Managing Trustee
BCDA Members Benevolent Trust

From the Principal's Desk……

Message

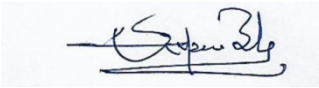
It gives me immense pleasure in noting that our BCDA College of Pharmacy & Technology, Hridaypur, is to organize a national conference on 12th and 13th November, 2022, of which theme is "Recent Status in Pharmacy Education, Research and Newer Job Opportunities".

It is well versed that scientific publications, seminar, symposium are in separable part of good quality education, and teaching learning process, and this will provide another opportunity to profession of pharmacy and pharmaceutical scientists.

Association of Pharmaceutical Teachers of India (APTI) a national level platform of teachers of pharmacy profession in India, which is giving its tired less efforts for progression of research and teaching learning prominence for all over India, and its Bengal branch has also been consented to be a co-host of this national seminar, we are delighted and proud of for its alliance to the same.

I believe this stage will give plenty scope to the researchers in exchanging their views and enhancing knowledge base throughout their involvement to the program.

My all the best wishes to all concerns and hope for all the success of this ***National Conference 2022.***



(Prof. (Dr.) Nripendra Nath Bala)
Professor & Principal,
BCDA College of Pharmacy & Technology, Hridaypur, Barasat
& Organizing Chairman, National Conference - 2022

From the Convenor's Desk……

Message

It is my pleasure and proud privilege to welcome you all to our National Conference organized by BCDA College of Pharmacy & Technology, Hridaypur campus, Kolkata in association with APTI West Bengal branch.

The theme of this Conference "Recent Status of Pharmacy education, research and newer job opportunities " attempts to cover briefly the developments in Pharmacy in India over the past 70-80 years, as it stands today and raises a few lacunae that need to be addressed to attain greater heights.

Pharmacy Education in India started in 1932 in the Banaras Hindu University, thereafter gradually spread across the Country with many Universities. Currently there are more than 3600 institutions as of now all over India offering D.Pharm., B.Pharm., M. Pharm., Pharm. D courses and almost 1.4 lakhs Pharmacists are graduated every year from all these streams.

Parallely the job opportunities of the qualified, skilled Pharmacists are increasing in the same pace in all sectors of our profession. We are professional. We have to maintain our dignity through strong work ethics, taking more responsibility and by giving dedicated service for the well being of the Nation as an important member of health care team.

India is the Pharmacy of the World. We are Leader. Our leadership is accepted globally.

India is now the World's largest generic drug supplier through improving regulatory compliance of the manufacturing sites and developing cost-effective and high-quality manufacturing processes. To consolidate and sustain its global leadership position, India needs to reduce dependence on imports for Active Pharmaceutical Ingredients (APIs), key intermediates and starting materials.

Indian academic and industrial research appears not to be innovative enough to support and sustain industry growth. All measures should be directed towards emphasizing the need and the value of a Educationist, Researcher and Community & Hospital Pharmacists in the healthcare system of the nation. To provide quality healthcare services, Pharmacists should be continuously trained and all the stakeholders must play a significant role in achieving this objective.

The Government of India, the Policymakers and regulators along with Professional organizations and we Pharmacists must come forward to create a proper Pharmacy workforce at various levels to improve patient's treatment & therapeutic outcomes and to reduce disease burden. Only then Pharmacy Profession would attain the much needed status and recognition in India.

Lastly, I can ensure that our journey towards the excellence will continue each year with the same energy and enthusiasm and we are also ready to meet and overcome the challenges that will come our way

At the end, I thank everybody for your active cooperation, help, support to make this National Conference a grand success.

With regards,

Nityananda Mondal

(Dr. Nityananda Mondal)
Convernor, National Conference – 2022
& President, APTI West Bengal branch.

Plenary Lecture – I

Prof. (Dr.) Milind Umekar
President, APTI, India

Title: Future of Pharmacy Education and Research

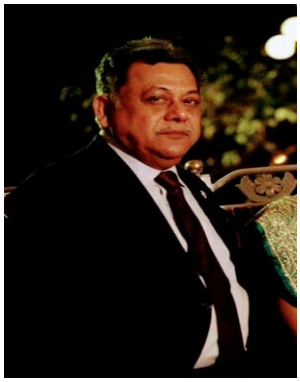
Harmonization of pharmacy education has to be made a global agenda that will encompass the developments that have taken place in basic, medical, pharmaceutical sciences in serving the needs and expectations of the society. The professional pharmacy curriculum is designed to produce pharmacists who have the abilities and skills to provide drug information, education, and pharmaceutical care to patients; manage the pharmacy and its medication distribution and control systems; and promote public health. Required coursework for all pharmacy students includes pharmaceutical chemistry; pharmaceutics (drug dosage forms, delivery, and disposition in the human body) pharmacology; therapeutics (the clinical use of drugs and dietary supplements in patients); drug information and analysis; pharmacy administration (including pharmacy law, bioethics, health systems, pharmacoeconomics, medical informatics); clinical skills (physical assessment, patient counseling, drug therapy monitoring for appropriate selection, dose, effect, interactions, use); and clinical pharmacy practice in pharmacies, industry, health maintenance organizations, hospital wards, and ambulatory care clinics.

Biography:

Dr. Milind J. Umekar, Principal and professor, Smt Kishoritai Bhoyar college of Pharmacy, Kamptee completed his B.Pharm from Amravati University, M. Pharm and PhD (Pharm.Sci.) and MBA & PhD (Management) from RTM Nagpur University, Nagpur. Dr. Umekar has 25 years of teaching, research, and administrative Experience. He has been a versatile guide and has guided 77 M. Pharm and 7 PhD students in various fields of pharmaceutical sciences. He has published more than 212 research articles in national and international journals. He is recipient of best research paper award at International conference of Ethnopharmacology, Petra, Jordan in 2015. He has been awarded with prestigious fellowship in Indian Pharmacological Society (FIPS). He has also authored various books on Biochemistry and Pharmaceutics. Under his able guidance institute has received various research grants worth Rupees 175lakh from SERB-DST and AICTE. Dr. Milind Umekar has been chairman and Member of LOC for reputed International Scientific Conferences like, 45th International Conference of Indian Pharmacological Society, 2nd International

Conference of Ethnopharmacology, 68th IPC, First and Second Pharma HR Summit. He has chaired many scientific sessions at conferences of IPC, APTI, ISP, IPS, PHRSI, INNOPHARM etc. He has been Convener and coordinator for many scientific workshops and seminars. Under his visionary leadership as a President, APTI, MS, he has made many reforms and has conducted several programs for the professional growth of Pharmacy teachers. Through his administrative skills and excellent directions his institute Smt. Kishoritai Bhoyar college of Pharmacy has been ranked 34th at all India level by National Institute Ranking Framework, 2017, Ministry of HRD, Govt. of India. He has worked as Member, Board of Studies, RTM Nagpur University. He serves as an examiner for UG, PG and PhD courses at various universities. He is associated with 33 National and International Professional Bodies & Organizations. Currently he is President, Association of Pharmaceutical Teachers of India, Vice President, Pharmacognosy Society of India, Secretary, Association of Unaided Private Pharmacy Colleges, and Member, Indian Pharmaceutical Congress Association, worked as President of IPA (Nagpur Branch), State Coordinator of Society of Pharmacognosy. He is Founder Secretary of Pharma HR Society of India and National executive member of Indian pharmacology society. Dr. Umekar has been honored with Pharmacy Teacher of the Year Award, Maharashtra Pharmacist Association Award, Young Achiever Award, National Teacher Excellence Award, Best Teacher Award and Best Principal Award by various professional organizations.

Plenary Lecture – II



Mr. Sovan Chakravarty
Senior GM, Elder Pharmaceuticals Ltd.

"When we are focusing on the domain of Pharmaceutical Marketing and sales and fresh B-Pharm graduates are exposed to the world of reality, you will find the core areas of most of the jobs in the digital ages are attached to sales, marketing, and ultimately profit in the business. Pharmaceuticals or Heath care businesses, both at national and global levels are huge and growing at a faster rate compared to other industries.

Make no mistake; the Pharma industry is decent and largely dominated by the people across the world with pharmacy backgrounds, precisely because they know what are they selling and why. I wish, they are well groomed with excellent knowledge base, communication skills so that they are able to take up the profession in a far better way"

Biography:

Mr. Sovan have been associated with the Pharma industry for little more than half a century but as per his modest realization he is yet to reach the destination and still sailing, which proves his tremendous hunger for updation with the present scenario. The journey has not been a path of roses and he thinks he has been batting reasonably well.

He started with the lowest level as MR in multinationals like Johnson & Johnson and Boots (now Abbott) and navigated to Glaxo (now GSK) and got a break as Area sales Manager and after few years was sent to Mumbai in the product management for 4 years. During this tenure he had the privilege of working Pan India in terms of meeting important doctors and arranging briefings on strategies for the field people (both MRs and Managers). He was finally assigned as Regional Sales Manager for both the Eastern & Northern parts of the country and pride to have launched blockbuster products of international repute like Zinetac, Ceftum, Fortum & Ventorlin in domestic markets. The 20 years, the best part of his youth was devoted to Glaxo (now GSK)

He changed over to an Indian company "Elder Pharmaceuticals Ltd." (a publicly quoted company) as Divisional Sales Manager and then promoted to General Manager and finally as Senior General Manager to manage all the trading faces of the company including Nepal and was assigned the overall responsibility of Administration. He, very thankfully and

gratefully served for 23 years before he called it a day. He had the opportunity of travelling to most of the European countries as a part of CRM. He opines, Age is just a number and post retirement. He is now an Advisor for sales & marketing in medium-sized companies based in Kolkata for the last 4 years and trying to accomplish the duties entrusted on him.

He prefer to put forward a few words, one may always take some inputs out of It, if found sensible

Keyword: INTEGRITY
His advice: LEARN TO BE RESPONSIBLE
The lesson I learnt: Train yourself in multinationals, utilize & implement in domestic companies. One may not always agree but that is what I experienced.

Plenary Lecture – III

Mr. Avisek Dutta
Deputy GM, Cognizant Technology Solutions

Title: Life of a Pharmacovigilance Professional: Opportunities and Challenges

Everybody wants a growth in career. But very few careers offer that growth potential. Speaking about Pharmaceuticals, very few careers in this field have the growth potential as in Pharmacovigilance. There are multiple opportunities across the globe for a Pharmacovigilance professional. But with every opportunity, there are multiple associated challenges. A Pharmacovigilance professional can be rewarded with ample growth opportunities provided he is able to handle the daily challenges effectively. After all, a life without challenges is like a journey without adventures.

Biography:

Avisek Dutta had completed his post-graduation in Clinical Research under Cranfield University, United Kingdom. He started his career in Clinical Research as a Clinical Research Coordinator with IRL Research (P) Ltd. where he handled 5 global oncology trials and 1 global osteoarthritis trial. Working on these 6 global trials helped him in gaining a significant experience in Clinical Research. Avisek then moved to Quintiles Translational as an Operations Specialist in Pharmacovigilance where he got his very first exposure in ICSR and later he joined Kinapse India as a Pharmacovigilance Scientist. His span with Reliance Life Sciences where he served as a Drug Safety Manager, gave him a great exposure in the end-to-end process of Pharmacovigilance including both ICSRs and Aggregate Reports. Avisek has been associated with Cognizant since 2016. He is currently holding the position of Deputy General Manager and leading a team of more than 350 members including case processors and medical reviewers. Avisek has published more than 15 articles so far in peer reviewed publications. He was also appointed as a member of the editorial board for a reputed publication house in 2021.

Abstracts for Poster Presentations

BCDACPT/P-01/2022

Enhancement of Solubility and Dissolution of Ibuprofen Tablets by Solid Dispersion Technique

Pinki Biswas*, Soujanya Mukherjee, Sudipta Das, Arnab Samanta, Smita Podder, Pallabi Sur
Netaji Subhas Chandra Bose Institute of Pharmacy, Chakdaha, Nadia, W.B.
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Abstract: This study was aimed to improve the solubility and dissolution of the non-steroidal anti-inflammatory drug ibuprofen by using solid dispersion technique. Solid dispersions of ibuprofen were prepared via fusion method by using hydroxyl-propyl-methyl-cellulose (HPMC) and xanthan gum in different weight ratios. Different formulations of the solid dispersion of ibuprofen granules were compressed into tablets by direct compression method in single punch tableting machine. The flow properties of the granules of the different formulations were evaluated by determining their angle of repose ($25.36^0 \pm 1.45^0$ to $29.84^0 \pm 1.55^0$), bulk density (0.505±0.010 to 0.530±0.024 g/cm^3), tapped density (0.618±0.009 to 0.669±0.029 g/cm^3), Hausner ratio (1.21±0.017 to 1021±0.013) and Carr's index (17.35±0.012 to 19.73±0.005 %), which shows satisfactory flowability. The prepared tablets were evaluated by weight variation, friability (0.53±0.24 to 0.78±0.26)%, hardness (5.2±0.28 to 5.7±0.48) kg/cm^2, thickness (3.80±0.14 to 4.03±0.20) cm, *in-vitro* drug release study. The drug release kinetics of different formulations were determined. Among the six formulations first formulation (F1) containing HPMC showed 85% drug release after 120 min of *in-vitro* dissolution study and the release of the drug from the formulation followed the Korsymeyer-Peppas Model. It means that two or more mechanisms for drug release were involved. This study suggested that the preparation of ibuprofen by solid dispersion technique using HPMC as a hydrophilic polymer could be a promising approach to enhance the drug's solubility and dissolution.

Keywords: *Ibuprofen, Solid dispersion, HPMC.*

BCDACPT/P-02/2022

Role of Pharmacovigilanceon Vaccine Control and Future Trends

Ankita Dey*, Shayari Dutta
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Abstract: Pharmacovigilance's main objective is to encourage the safest possible use of medications. Vaccine pharmacovigilance refers to the studies and methods used in the detection, assessment, understanding, avoidance and reporting of adverse vaccination reactions or any other problems related to vaccination or immunization. Although the vaccinations are biological products meant to prevent infectious diseases, they can occasionally result in AEFI (Adverse Events Following Immunization). One crucial stage in the prevention of issues with the immunization system is the detection of adverse effects after proper immunization. There are several challenges in the domain of pharmaceutical safety and regulations that must be resolved in the near future. The goal of vaccine pharmacovigilance is the early detection and timely response to adverse events following immunization, in order to minimize negative effects to the health of individuals and lessen the potential negative impact on immunization of population. The improvement of the

pharmacological benefit-risk profile evaluation in the real-world settings is made possible by the development of new techniques which includes machine learning and the accessibility of the enormous amount of electronic health care data. Last but not the least; new treatments have been marked more frequently in recent years. Examples include advanced therapy medical goods, digital medicines and vaccines developed using sophisticated technologies.

Keywords: *Pharmacovigilance, AEFI, immunization, vaccine.*

BCDACPT/P-03/2022

Aparajita: Future Prospects with Potential Pharmacological Properties

Katha Mondal*, Zainab Irfan, Sumon Giri

Department of Pharmaceutical Technology, Brainware University, Barasat, Kolkata.

*Presenting author's e-mail: kathamondal26@gmail.com

Abstract: The biological name of aparajita is Clitoriaternatea belonging to the Fabaceae family. Aparajita means "The Undefeated." Throughout tropical India, Clijoriaternatea, a well-known tropical perennial climber with a slender downy stem, can be found growing in gardens and in the wild. It blooms in either white or blue. The bark of the root contains resin, tannin, and starch. Tannic acid, glucose, a light brown resin, ash, a fixed oil, a bitter acid resin (the active component), and a bitter acid resin are also present in the seeds. Additionally, sitosterol and anthoxanthin from seeds, taraxerol from roots, and lactoneaparajitin from leaves have all been identified. The extracts have been utilised as a component of the rejuvenating herbal remedy "Medhya Rasayana" to treat a variety of neurological conditions and to boost mental ability. It is a plant that has a wide range of potential therapeutic applications, including anti-convulsant, anti-depressant, anti-stress, antianxiety, antioxidant, analgesic, and anti-inflammatory effects. In this paper, we'll emphasize on its enormous potential, which can be employed for a wide range of pharmacological activities, such as anti-diabetic properties to develop new herbal medicines that are easier to get, more potent, and have fewer complications.

Keywords: *Aparajita, Diabetes, Pharmacological activity, Herbal medicine*

BCDACPT/P-04/2022

Amrita – The Multipurpose Herbal Plant

Ankan Pandey, Zainab Irfan, SumonGiri

Department of Pharmaceutical Technology, Brainware University, Barasat, Kolkata.

*Presenting author's e-mail: pandeyankan@gmail.com

Abstract: *Tinospora cordifolia* is a popular medicinal plant is used in numerous traditional remedies to treat a wide range of illnesses. Amrita and Guduchi are the common names. It is a member of the Menispermaceae family. Although all plant parts are utilised in traditional medical systems, the leaves, stem, and roots are the most crucial components. Its phytoconstituents include alkaloids, diterpenoids, lactones, glycosides, steroids, sesquiterpenoids, phenolics, aliphatic compounds, and polysaccharides, among other groups of constituents. The plant is frequently used in traditional ayurveda medicine and has a variety of therapeutic benefits, including those for jaundice, rheumatism, urinary disorders, skin illnesses, diabetes, anaemia, inflammation, allergic conditions, anti-periodic qualities, and radioprotective effects. Additionally, it helps to strengthen the immune system, the

body's resistance to infections, and normal white blood cell structure, function, and levels In this article, we'll concentrate on the tremendous potential of *Tinospora cordifolia* which may be used for a variety of pharmacological processes, including wound healing, anti-cancer, antidiabetic, anti-microbial, and antioxidant activity. We'll also discuss about potential strategies for utilising the different phytoconstituents it possesses to find novel drugs made from herbal plants that are more effective, have less adverse effects, and are simpler to obtain.

Keywords: *Tinospora cordifolia, antioxidant, anti-microbial, anti-diabetic, wound healing.*

BCDACPT/P-05/2022

Green Synthesized Silver Nanoparticles as A Potent Therapeutic Agent

Anamika Ranjan*, Prodipta Bhattacharyya, Rimum Ghosh

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*Presenting author's e-mail: anamikarjar@gmail.com

Abstract: Nanotechnology explores a variety of promising approaches in the area of material sciences on a molecular level and silver nanoparticles (AgNPs) are of leading interestnow-a-days. Green synthesis of (AgNPs) makes use of plant constituents, like carbohydrates, fats, enzymes, flavonoids, terpenoids, polyphenols, and alkaloids, as reducing agents to synthesize silver nanoparticles. Green synthesis can be categorized as: (a) utilization of microorganisms like fungi, yeasts (eukaryotes), bacteria, and actinomycetes (prokaryotes), (b) use of plants and plant extracts (c) use of templates like membranes, viruses DNA, and diatoms. Silver nanoparticles are the most prototypical target of green methods. The fabrications of (AgNPs) have been specifically used in agriculture and medicine as antibacterial and antioxidants. AgNPs arrest the growth and multiplication of many microbes by binding Ag/Ag^{+} with the biomolecules present in the microbial cells. AgNPs produce reactive oxygen species and free radicals which cause apoptosis leading to cell death preventing their replication. AgNPs are smaller than the microorganisms; they diffuse into cell and rupture the cell wall. AgNPs develop diagnostic tool and effective treatment solution for cancer cells. AgNPs stimulated stronger antigen specific IgA production with lower toxicity by promoting bronchus-associated lymphoid tissue (BALT) neogenesis, and acted as a mucosal adjuvant.

Keywords: *Nanotechnology, silver nanoparticles, cancer, microorganisms, green.*

BCDACPT/P-06/2022

Microneedle Based Transdermal Drug Delivery Approach: An Advanced Therapeutic Strategy

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Abstract: Transdermal drug delivery system (TDDS), a non-invasive technique, provides a leading edge over injectables and oral routes by offering sustained drug release, avoiding first-pass metabolism and thus increasing patient compliance. However the main obstruction in the release of drug from the transdermal patch is the barrier property of the stratum corneum. The emerging development of microneedles for TDDS, due to its ultrafine micro architecture, has facilitated improved penetration across the stratum corneum layer of the skin

and various biological barriers like cellular impermeability and blood-brain barrier, for the delivery of macromolecules or hydrophilic drugs. Microneedles increase the invasion of the drug at the target site and have the advantage of carrying maximum concentration of the drug and also reduce systemic toxicity. Currently, microneedle-based vaccination has gained tremendous attraction of biomedical and pharmaceutical researchers as conventional methods require professional training of phlebotomy. The microneedles are fascinating in the case of self-administered vaccination. TDDS sampling using microneedles is used for diagnosing cutaneous and systemic viral infectious diseases. Microneedles introduces more advanced functions, including increased skin penetration efficiency, controlled drug release rates, enhanced targeting abilities, and theranostic functions and is efficient to deliver drug in a minimal invasive and painless manner which require no expensive equipment. They serve advanced functions to improve the therapeutic outcomes which ultimately show a great potential in treating skin diseases.

Keywords: *Non-invasive, Microneedle, Stratum Corneum, Transdermal patch.*

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Carbon Nanotubes (Cnts): A Promising Tool in the Treatment of Cancer Therapy

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Abstract: Carbon nanotubes (CNTs) offer an alternative and promising platform of drug delivery system due to their unique and unified physicochemical properties. These were discovered in 1991 by SumioIijima. CTNs can be categorised as follows: single walled carbon nanotubes and multiple walled carbon nanotubes. CNTs are essential in the delivery system of many therapeutic active compounds, ranging from antineoplastic agents, cardiovascular drugs, anti-infective to anti-inflammatory agents. The unique properties of CNTs such as ease of cellular uptake, high drug loading, thermal ablation etc. They are considered one of the most promising nanomaterials with the capability of both detecting the cancerous cells and delivering drugs or small therapeutic molecules to these cells. Over the last several years, CNTs have been explored in almost every single cancer treatment modality, including drug delivery. Recently nanotechnology has made huge advancement in cancer therapy with gigantic application. Due to their unique physicochemical properties, CNTs can be applied in a multifunctional way for cancer treatment and diagnosis. CNTs have the potential to deliver drugs directly to targeted cells and tissues. Here CNTs play a major role because phenomena such as EPR (Electron Paramagnetic Resonance), allow CNTs to distinguish Normal cells from affected ones in cancer therapy. The present work attempts to illustrate the basic of CNTs and the mechanism that how CNTs are used in anti-cancer therapy.

Keywords: *Carbon nanotubes, Intracellular targeting, Cancer therapy, Targeted drug.*

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Solubility Enhancement of Poorly Water-Soluble Drugs by Solid Dispersion Method

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Abstract: For proper absorption of drug by the body, it needs to be in a solution state at the point of absorption. Hence Solubility is a key factor in determination of how effective the drug will be. In case of poorly water-soluble drugs Solubility enhancement techniques can be helpful to overcome those problems. One of the techniques is solid dispersion for the same.

The term solid dispersion refers to a group of solid products consisting of at least two different components, generally a hydrophilic matrix and a hydrophobic drug.

To check the enhancement of solubility, Carvedilol, a poorly water-soluble drug was selected. Standard curve of the API was made in 0.1 N HCl. Next the solid dispersion of Carvedilol was developed. For that PEG 4000 was selected as the carrier. Solid dispersion of Carvedilol was prepared by melting and dispersion method. The drug and carrier polyethylene glycol 4000 were mixed in 1:10 and 1:5 in the beaker keeping on temperature regulated magnetic stirrer. The mixing was done for a sufficient period of time in the molten stage of PEG 4000.

Later the solidified mass was dried pulverised and passed through sieve # 100. Estimation of drug content: The formulation equivalent to 10 mg of Carvedilol was weighed and diluted suitably with distilled water. The absorbance was measured at 287 nm and the amount of drug in each formulation was calculated. The solubility of the drug was remarkably increased in the preparation made by solid dispersion method.

Keywords: *Solid dispersions, PEG 4000, solubility, carrier.*

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"Mechanobiology: A New Aspect of Disease Manifestation and Drug Designing"

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Abstract: Microbial contamination or infection and Systemic disorder are the two main manifestation of disease occurrence. Chemical components are responsible for occurrence of phathophysiological changes in disease state. Mechanical forces such as gravity, tension, shear, compression, hydrostatic pressure, osmotic pressure may also cause disease through cell signalling by mechanotransduction. So, mechanical force can also utilize for the correction of disease state.Mechanobiology research is an upcoming way of drugdevelopment and translational medicine research. It is now known that changes in cellular mechanics may cause diseases like cancer, infectious diseases, cardiovascular diseases and ageing.Fibroblast and chondrocyte are the cell that affected by mechanical cues like tension, compression and shear pressure.Fibroblasts synthesize structural proteins, some of which are mechanosensitive and form integral part of the extracellular matrix as collagen (types I, III, IV, V VI) elastin, lamin etc. Apart from the synthesis of structural proteins, fibroblasts make Tumor-Necrosis-

Factor-alpha (TNF-α), Transforming-Growth-Factor-beta (TGF-β) and matrix metalloproteases that plays in tissue in tissue maintenance and remodelling. Chondrocytes are the only cells found in healthy cartilage which produce and maintain the cartilaginousmatrix that consists mainly of collagen and proteoglycans. Presently mechanical therapies are in clinical use. Cytoskeleton maintains the overall organization of cell and hence maintains the cellular transport mechanism which is disturbed by various mechanical stimuli and disrupts the micro tubular functioning and also causes neurodegenerative disease. Muscular defects may arise from the dysfunctional actine cytoskeleton.

Keywords: *Mechanobiology, transdyction, fibroblast,chondrocyte.*

BCDACPT/P-10/2022

Anti-Diabetic Activity of Iriflophenone-3-C-B-D Glucoside : An Overview

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Abstract: Iriflophenone 3-C-β-D glucoside is a Benzophenone derivative which can be obtained from various plants like *Aquilaria crassna, A.sinensis, A. malaccensis, Cyclopia genistoides, Mangifera indica, Dryopteris ramosa* etc. It acts as an important herbal active constituent as it has various pharmacological actions like anti-diabetic, anti-inflammatory, anti-oxidant, and anti-microbial. From ancient period plants like *A. sinensis, M. indica* are traditionally used to treat various diseases like diabetes, neoplasia, skin infections etc. in Indian subcontinents. Diabetes Mellitus (DM) is a metabolic disorder which is very much frequent in recent days. International Diabetes Federation estimates that 1 in 11 adults between 20 to 79 years had DM in 2015. Though various synthetic drugs are present for treatment of DM but to reduce side effects DM should be treated with natural products. Literature showed that from *A. sinensis* 8 compounds was isolated among which Iriflophenone 3-C-β-D glucoside was found to be active against DM effectively. The enzyme α-glucosidase hydrolyses carbohydrates into glucose. So, inhibition of α-glucosidase means the concentration of glucose in blood will be decreased. Due to this mechanism it can act as a highly potent anti-diabetic agent. Researches also showed that it can be isolated from *M. indica* also and can show anti-diabetic effect. So it is hypothesized that due to the presence of Iriflophenone 3-C-β-D glucoside plants like *M. indica* and *A. sinensis* show anti-diabetic effect.

Keywords: *Iriflophenone 3-C-β-D glucoside, α-glucosidase, Anti-diabetic, M.indica, A. sinensis.*

BCDACPT/P-11/2022

SolubilityEnhancementTechniques of PoorlyWater-SolubleDrugs

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Abstract: Solubility is the phenomenon of dissolution of solute in solvent to form a homogenous system. It is one of the important parameters to attain desired concentration of drug in systemic circulation for pharmacological response to be shown. The poor aqueous

solubility of BCS class II drug, represent a major challenge for oral dosage form development for formulation scientists. Since poorly soluble drugs possess low absorption and bioavailability it is vital to improve thesolubilityanddissolutionrateof those drugs. About 40% of all new chemical entity has poor bioavailability.Selection of solubility improving method mainly depends on drug property, site of absorption, required dosage form characteristics. Various novel techniques like micronization, spray freezing into liquid, use of surfactant, solid dispersion, salt formation, pH adjustment and molecular encapsulation with cyclodextrin etc. are there for enhancement of solubility. This review is intended to discuss about some of the techniques for solubility enhancement of hydrophobic drugs for oral pharmaceuticalformulation.

Keywords: *Solubility enhancement, Solid dispersion, Bioavailability, BCS class II, Novel formulation.*

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Review on Bi-Layer Tablet

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Abstract: Bi-layer tablets are prepared with one layer of drug for immediate release while second layer designed to release drug, later, either as second dose or in an extended release manner. Bi-layer tablet is suitable for sequential release of two drugs in combination, separate two incompatible substances, and also for sustained release tablet in which one layer is immediate release as initial dose and second layer is maintenance dose Bi-layer tablet is a new era for winning development of controlled release formulation along with various features to provide successful drug delivery. Bilayer tablets can be crucial option to avoid chemical incompatibilities between active pharmaceutical ingredients (APls) by physical separation and to facilitate the development of different drug release profiles. So use of bi-layer tablets is a very different aspect for antihypertensive, diabetic, anti-inflammatory and analgesic drugs where combination therapy is often used. Several pharmaceutical companies are currently developing bi-layer tablets, for a variety of reasons: patent extension, therapeutic, marketing to name a few. In order to reduce the area of contact between two layers, bilayer tablets with two incompatible medications can also be made by compressing distinct layers of each drug. Because of the drug's poor flow and compatibility characteristics, which will lead to capping and/or lamination, it may occasionally be challenging for the formulator to attain these conditions, especially in the case of bilayer tablet formulation, where double compression technique is used. *Conclusion*: Bi-layer tablets are being used now-a-days as release of both drugs starts immediately, reduce the side effects and also reduced the pill burden.

Keywords: *Bilayer tablet, Novel drug deliver, double compression technique.*

BCDACPT/P-13/2022

Repurposing of Minocycline against Drug-Resistant Bacteria Based on Research Studies

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Abstract: The number of infections is increasing due to drug resistance with limited treatment options, resulting in a need for additional therapeutic agents or the repurposing of older or ignored antibiotics, which led to an increase in interest in using minocycline as a treatment against bacterial infections. Even minocycline often proves to overcome the resistance of many bacteria to other tetracyclines. An antimicrobial susceptibility test is performed to find out the antibiotic resistance against any antibiotic. Different concentrations of the same antibiotics were prepared through dilution and used during susceptibility tests, and the zone of inhibition was further observed. This review will focus on the repurposing of minocycline to overcome antibacterial resistance and studies related to it.

Keywords: *Repurposing, antibiotic-resistant bacteria, antimicrobial susceptibility test, Zone of Inhibition.*

BCDACPT/P-14/2022

Management of Migraine

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Abstract: One of the most common health issues in the world is primary headache disorders. Headaches were listed as the second most frequent cause of years lost due to disability (YLD) while migraines alone were included as the sixth most frequent cause of YLD in the 2017 World Health Organization's systematic review of the global burden of illness. It is a significant contributor to disability and imposes a heavy personal and economical impact on affected individuals. Treatment for migraines is frequently limited by inadequate therapy response, necessitating specifically tailored therapeutic approaches. Treatment should concentrate on decreasing impairment while reducing headache frequency and the development into chronic daily headache. The clinician should prioritise a multidisciplinary approach that incorporates but is not limited to, a team of clinical practitioners and behavioural pain specialty providers, when available, and offer therapies that encompass both pharmacological and non-pharmacological approaches. This study focuses on the pharmaceutical treatment of migraines while stressing on non-pharmacological treatment, i.e. importance of co-morbidity management, trigger detection, lifestyle changes, and patient education.

Keywords: Migraine, Pharmacological management, Non-pharmacological.

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Lumpy skin Disesase: An Overview and Its Consequences

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Abstract: Lumpy Skin Disease (LSD) is a vector-borne pox disease caused by Neethling virus and the lumpy skin disease virus (LSDV), a member of the genus Capripoxvirus (CaPV) within the family Poxviridae, shares the genus with sheep pox virus (SPPV) and goat pox virus (GTPV) which are closely related but phylogenetically different. These diseases are characterized by the appearance of skin nodules in most of the domestic cattle and European cattle breeds along with the African Cape buffalo (Synceruscaffer) and the Asian water buffalo (Bubalus bubalis). The principal vector is likely to vary between geographical regions

and ecosystem. The common stable fly (Stomoxyscalcitrans), the Aedes aegypti mosquito and some African tick species Rhipicephalus and Amblyomma spp. have demonstrated the ability to spread the LSDV. The etiology includes lachrymation and nasal discharge (primary), sharp drop in milk yield and appearance of nodular skin lesions of 10-50 mm in diameter. Outbreaks of LSD cause animal welfare issues such as damage to hides, infertility and abortion which leads to substantial economic loses. All stakeholders in the cattle industries suffered major income losses but at the same time, the mostly affected individuals are the backyard farmers. Also, transportation such as export and import has become a massive factor in these particular cattle industries, which are facing major income losses due to the transmission of the LSD in several cattle breeds. Large scale vaccination is the most effective way to minimize the spread of these disease.

Keywords: *Vector-borne pox disease, Neethling virus, Capripoxvirus, Aedes aegypti, Rhipicephalus, Amblyomma.*

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Evaluation of Antimicrobial Activity of Hydro-Alcoholic Extract of *Mikania scandens*

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Abstract: The present investigation evaluates the antimicrobial activities of the hydro-alcoholic extractsof Mikania scandens L. Wild (Family: Asteraceae). Minimum inhibitory concentration ofciprofloxacin and hydro-alcoholic extract of Mikania scandens is 500 micrograms / ml and4000 mg / ml respectively. Reports of the zone of inhibition study reveals that the hydro-alcoholic extract exhibited inhibition of microbial growth (8 mm) at a dose of 1000 µl/ml and antibiotic (ciprofloxacin) inhibits growth (8 mm) at a dose of 160 µl/ml. So, hydro-alcoholicextracts have shown promising antibacterial activity against gram positive bacteria viz.Bacillus subtilis.

Keywords: *Mikania scandens, hydro-alcoholic, ciprofloxacin, Bacillus subtilis*

BCDACPT/P-17/2022

Nanomagnet: Theragnostic Properties for Cancer Therapy

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Abstract: Researchers all over the world are trying to make nanotechnology applications used for detecting and treating oncological diseases. Super-magnetic Iron Oxide Nanoparticles (SPIONs) are nano-vector, which recently gained a lot of attraction in scientific community due to their huge therapeutic and diagnostic applications. They have excellent biocompatibility, high surface area, high reactivity, spherical shape, electrical, superior contrast, optical, magnetic, and photo-inducibility properties, adjustable nanoscale size- all of which make it desirable for pharmaceutical application. Unlike bulk iron, SPIONs do not have remnant magnetization in the absence of the external magnetic field; hence, their action can be easily controlled. SPIONs also have some disadvantages, like their high uptake by macrophages. SPIONs have potential for local drug

delivery with real-time monitoring and imaging (Magnetic Resonance Imaging-MRI) of the targeted area, as it is possible to modify their surface and core characteristics. The SPION core could catalyse the oxidation of peroxidase in the presence of diaminobenzidine substrate and hydrogen peroxide, imparting a brown colour to the reaction mixture and thereby enabling visualization of tumour tissues using defined wavelengths. In a recent study, a recombinant human heavy-chain ferritin protein shell (with specific binding to transferrin receptor 1 overexpressed on tumour cells) loaded nanomagnets were successfully designed. All the potential theragnostic properties of the nanomagnet make it a promising candidate in oncological therapy (brain, breast, prostate, and pancreatic tumours).

Keywords: *nanomagnet, SPIONs, magnetization, cancer, MRI*

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Role of Mangrove Flora in Combating Bio-film Formation

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Abstract: Bacterial biofilms are complex surface attached communities of bacteria held together by self-produced polymer matrix mainly composed of polysaccharides, secreted proteins, and extracellular DNAs. The National Institute of Health (NIH) revealed that approximately 80% of chronic and recurrent microbial infections in the human body are due to bacterial biofilm. Urinary tract and bloodstream infections can be caused by the biofilm initially formed on medical implants, such as heart valves,catheters,contact lenses,IUDs and dental unit.Biofilm formation is detrimental in healthcare,drinking water distribution systems,food, and marine industries,biofilms have been demonstrated to be more than 1000 fold resistant to treatment with conventional antibiotics.The formation of a biofilm involves the following stages: attachment to a surface, formation of microcolonies, maturation and dispersal. Biofilms are a successful long-term survival strategy employed by bacteria in the environment and during infection due to the resistance to hostile conditions and antibiotic treatment.Natural products can be very useful in combating the biofilm infections.Mangroves are one such natural product whose extracts have scientifically been proven to reduce biofilms.Mangroves were chosen as they have already been proven to be promising in interfering with planktonic and sessile bacteria and fungi.They are used in ethno botany for the treatment of several diseases, including infections,and also as pesticides.An advantage of using the extracts is their putative additive and synergistic activity,as they can act on multiple targets, which is an interesting strategy when dealing with the complex biofilm formation phenomenon.The present study focuses on biofilm formation mechanism and stages,toxic impact of biofilm and role of mangrove extract in biofilm reduction.

Keywords: *Bio-film, Stages of Bio-film, Mangrove, Natural bio-active product.*

BCDACPT/P-19/2022

Role of Natural Products in Obesity: Case studies

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Abstract: The prevalence of the obesity increasing around the world. Obesity is a very common global health problem. As per recent report of WHO a total 38 million children (age<5 years) were overweight or obese in 2019, and according to the Organization for Economic Cooperation and Development (OECD) report, almost 1 in 4 people are obese. The last 2 decades witnessed and enormous increasing in obesity and its co-morbidities among people worldwide, does making it the 5^{th} most important cause of human death. Obesity is a metabolic disorder characterised by excessive fat in the body. This results in many complications such as Type II diabetes, Cardiovascular disease, Respiratory disease, Cancer, Musculoskeletal disorder (especially osteoarthritis). For the treatment of obesity various synthetic drugs are available, but this are associated with adverse effects. There is an incessant need to develop new alternative anti-obesity strategies with long term efficacy and less side effects. Recently, interest has increased in the development of ingredients from natural sources with low adverse effects for preventing and ameliorating obesity. Plant harbor primary and secondary metabolite, derived from various plants worldwide have been shown to have effective antiobesity properties. These phyto-constituents inhibiting the lipid and carbohydrate metabolizing enzyme, nutrient absorption, decreasing adipogenesis, appetitesuppression, stimulating fatty acid beta oxidation, diminishing inflammatory responses and enhancing energy metabolism. This review focuses on antiobesity effects on different dietary or herbal products and their mechanism in the treatment for obesity that have been reported inthe past decade.

Keywords: *Obesity, Natural products, Mechanism, Appetite, Adipogenesis.*

BCDACPT/P-20/2022

Lead Toxicity Induced Neuro-Degeneration: A Mechanistic Approach

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Abstract: As per recent reports of WHO, lead exposure killed nearly 1million lives in 2019. Long term effects causes 30% idiopathic intellectual disability, 4.6% cardiovascular diseases, 3% chronic kidney diseases globally. Lead can concentrate in plants, single-celled algae in aquatic ecosystems causing inhibition of growth, interference with cell division, reduction of photosynthesis and disrupting various other vital processes. A number of studies have shown the ability of marine organisms, fishes, invertebrates and even birds take up lead and pose threat for their existence. Lead competes with other minerals in cellular system especially zinc & calcium. It therefore disrupts several cellular processes that depend on these minerals. Lead directly affects the hematopoietic system by inhibiting haeme-synthesis pathway. Lead can pass through BBB & cause damage to cerebral cortex & cerebellum. Children are at a greater risk of lead toxicity because it interferes with their Synapse & Ion channel formation.

This can cause neurodegenerative disorders like Alzheimer's, Parkinson's disease &Schizophrenia. Experimental animal studies have shown significant CNS damage. This is accompanied by muscle twitches, paralysis of tongue, stargazing. The present work focuses on the detrimental effects of lead, its molecular mechanism for toxicity, neurodegenerative biomarker study by reviewing current animal experimentations thereby pavementing a way for the development of therapeutic & environmental solutions.

Keywords: *Lead poisoning; Neurotoxicity; Neuro degeneration; Molecular Mechanisms.*

BCDACPT/P-21/2022

Development of Quercetin-Loaded Dental – Nanoemulgel for Intra Pocket Drug Delivery

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Abstract: Nanotechnology has expanded in a diverse area of science, including various alternative and effective ways to treat many dental problems. Various nanoemulgel formulations are suitable for overcoming those difficulties because of their dual nature, thus it is a combination of two different delivery systems the nano emulsion system and the hydrogel system. The global burden of oral diseases such as oral cancer, dental caries, periodontitis, etc., and their consequences may affect the patient's life. Quercetin is a naturally derived flavonoid, and its application in oral treatment increasing due to its multifunction including antioxidant, antibacterial, anti-inflammatory, and anti-neoplastic activities. The Quercetin Nanoemulgel (QC-NEG) was formulated by evaluating various pre-formulation parameters to check the compatibility with the drug and other excipients. The FTIR was studied to check the interaction between the drug and excipients. The QC-NEG were developed by hot micro-emulsion method containing Eugenol (oil phase), Tween 80 (surfactant) and PEG 400 (co-surfactant), and double distilled water (aqueous phase), later the emulsion was sonicated for 45 min at 37℃. The final nano emulsion was converted into the gelling system by using Carbopol 934p. The factorial design was used to formulate QC-NEG to check the factor's interaction within the formulation. The Dynamic Light Scattering (DLS) method was performed for the measurement of particle size and the polydispersity index (PDI). The results confirmed the formation of nano formulation (10-200 nm). The consistency and texture of the optimized NEG loaded with Quercetin was found to be suitable for intra-pocket drug delivery for sustained release effect.

Keywords: *Nanoemulgel, Quercetin, Eugenol, Pre-formulation, Periodontitis.*

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Development of Itraconazole-Loaded Nanostructured Lipid Carrier for Antifungal Therapy

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Abstract: Fungal infection of the skin is one of the most common dermatological diseases. Gel formulations are among the most common dosage forms for topical use to treat the infection. The term "nanogel" refers to a nanoparticle made up of a hydrophilic polymer

network with a size between 10 nm to 1000 nm. In this experiment, nanogels were formulated with different variables, with the help of Design-expert software (2^3 factorial design).Three independent variables have been selected at two different levels to obtain the best composition. Polymers, drug, and the mixture of drug and polymers were subjected to FTIR analysis as a pre-formulation study. The results were found to be satisfactory. For the preparation of the Nanostructure lipid carrier (NLC), the hot homogenization technique was selected. Itraconazole-Nanostructure lipid carriers were created using olive oil as a liquid lipid, Stearic acid as a solid lipid, and Tween 80 as a surfactant. The mixture was homogenized for 15 - 20 minutes at a speed of 6000 - 8000 rpm. The visual observation revealed uniformity and homogeneity of the preparation. To measure the particle size and polydispersity index, Dynamic Light Scattering (DLS) technique was adopted to get confirmation about the nano-range of the particles. The findings confirmed the nano range of the particles; however, some modifications are required to further decrease the size of the particles.

Keywords: *Fungal infection, Nanostructure lipid carriers, DLS, Hot homogenization.*

BCDACPT/P-23/2022

Development of Quercetin-loaded Nanogel for Skin Psoriasis

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Abstract: Psoriasis is an auto-immune disorder that results in dry and scaly skin patches. Modern topical treatment requires not only new active substances but also improved actions of that constituent. From past research studies Quercetin, a natural flavonoid has been proven to have a unique ability to deliver active constituents in a nanoparticulate form. Hence Quercetin loaded nanogel (QC-NG) may call as an ideal drug carrier for local therapeutics in skin psoriasis. Nanogels are one of those formulations which can be used topically to treat various anti-fungal, anti-bacterial, auto-immune disorders and skin infections. QC-NG was formulated by emulsion polymerization followed sonication method contains Coconut oil (MCT), ratio of Tween 80 and Span 80 (surfactant and co-surfactant), ethanol (polar solvent), later the emulsion is sonicated for 1 hour at 42ºC. The QC-NG was converted into the gelling system using Carbopol 934p. The optimized QC-NG formulation can be done by various response surface methodologies such as Box-Behnken design, Plackett- Burman design, and factorial design. The Dynamic Light Scattering (DLS) method was performed for measuring particle size and PDI. The particle size of all the formulation batches was found within the range of 20-200 nm. The main objective of this study was to formulate the optimized QC-NG which shows the controlled release pattern of the active constituent from the formulation.

Keywords: *Nanogel, Quercetin, Pre-formulation, psoriasis.*

BCDACPT/P-24/2022

Nigella Sativa: A Miracle Herb

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Abstract: Black cumin (*Nigella sativa*), a highly valued nutraceutical herb with a wide array of health benefits, has attracted growing interest from health-conscious individuals, the scientific community, and pharmaceutical industries. The pleiotropic pharmacological effects of black cumin, and its main bioactive component thymoquinone (TQ), have been manifested by their ability to attenuate oxidative stress and inflammation, and to promote immunity, cell survival, and energy metabolism, which underlie diverse health benefits, including protection against metabolic, cardiovascular, digestive, hepatic, renal, respiratory, reproductive, and neurological disorders, cancer, and so on. Furthermore, black cumin acts as an antidote, mitigating various toxicities and drug-induced side effects. Despite significant advances in pharmacological benefits, this miracle herb and its active components are still far from their clinical application. *Nigella sativa* is reported to have numerous pharmacological activities such as anti-inflammatory, antidiabetic, antimetastatic, anxiolytic, hepatoprotective and immune-modulatory. The present article is an effort to provide a detailed survey of the literature on scientific researches of pharmacognostical characteristics, chemical composition and pharmacological activities of the seeds of this plant emphasising on wound healing.

Keywords: *Nigella sativa, thymoquinone, wound healing, miracle herb.*

BCDACPT/P-25/2022

Future Trends onNatural and Synthetic Agents Therapy for Skin Cancer

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Abstract: The most prevalent cancer in the world, skin cancer affects both sexes and people of all skin tones. All cancer types are becoming more common, and one in three newly discovered cancers are skin cancers. Melanoma and non-melanoma skin cancer are the most prevalent cancers in white- or light-skinned populations, where they affect a disproportionate number of people. UV light, both natural and artificial, is one of the primary sources of the mutations that turn healthy cells into cancer cells. These alterations disable apoptosis, a process necessary to prevent healthy cells from developing cancer. The most fatal of these malignancies are melanoma and Merkel cell carcinoma. Skin malignancies take a significant impact because of their quick development and ease of metastasis. A groundwork for the development of novel therapeutic approaches for these obdurate categories of skin malignancies has recently been provided by the improved understanding of the molecular and genetic basis of skin dysfunction in patients with skin cancers. This review discusses the current status of preclinical and clinical studies for the development of PI3K/Akt/mTOR targeted therapies using nutraceuticals and synthetic small molecule inhibitors.

Keywords: *Skin cancer, PI3K/Akt/mTOR, Merkel cell carcinoma, UV light.*

BCDACPT/P-26/2022

Mouth Dissolving Tablets: An Overview

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Abstract: The gold standard in pharmaceutical industry is the oral delivery because it is the easiest, safest, economical and convenient method for the drug delivery. Methods to improve patient compliance have always attracted scientists towards the development of novel oral drug delivery systems. Mouth dissolving tablets constitute an innovative dosage form that overcomes the problem of swallowing and provides a quick onset of action enhancing the bioavailability. Mouth dissolving drug delivery systems (MDDDS) have acquired an important position in the market by overcoming previously administration problems and contributing to extension of patient's life. Though oral drug delivery systems, preferably, tablets are the most widely accepted dosage form for being compact, offering uniform dose and painless delivery. But dysphagia is the most common disadvantage of conventional tablets. This is seen to afflict nearly 35% of the general population and associated with a number of conditions, like Parkinsonism, mental disability, motion sickness, unconsciousness, unavailability of water etc. To overcome such problems, certain innovative drug delivery systems like 'Mouth Dissolving Tablets' (MDT) have been developed. MDT have the unique property of rapidly disintegrating and/or dissolving and releasing the drug as soon as they come in contact with saliva, thus obviating the requirement of water during administration. Several techniques have been developed in the recent past, to improve the disintegration quality of these delicate dosage forms without affecting their integrity. This article focuses on the technologies available and the advances made so far in the field of novel formulation development for mouth dissolving tablets.

Keywords*: Mouth dissolving, fast disintegrating, super disintegrants, improved bioavailability, direct compression.*

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Natural Herbal Oil Used as a NovelPenetration for Transdermal Drug Delivery System of Simvastatin

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Abstract: Simvastatin is HMG-CoA reductase inhibitors (statins). It helps in slowing down the production of cholesterol in the body. Drug which is been delivered through transdermally, can only show its action after crossing the transdermal barrier to reach the systemic circulation. This transdermal patch are been prepared for variety of sizes which contain one or more than one type of ingredients which are been applied to entire skin for delivering the pharmaceutical active ingredient to the systemic circulation. For defeating this barrier function penetration enhancers plays important role for the dermal and transdermal drug delivery system. In observation it can be determine that natural oils give best result as compare to natural and synthetic enhancers. In connection it's been seen that Mahua oils gives the best result for maximum penetration enhancing effect and further there was no

similarity interaction observed between polymers and drug that is been used in the formulation.

Keyword: *Simvastatin, Transdermal, Mahua oils, Penetration enhancer.*

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Indian Pharmaceutical Sector: Prospects for Growth

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Abstract: The pharmaceutical industry (PI) is one of the fastest-growing economic sectors with worldwide sales of more than $1228.45 billion last year in 2020. Since the start of the 11th Plan in 2007, the Indian pharmaceutical industry has shown rapid growth of around 14%, growing from Rs. 71,000 crores to over Rs. 1 lac crores in 2009-2010, consisting of about Rs. 62,055 crores of domestic market and over Rs. 42,154 crores of exports. Additionally, this amount stands for 20% of the volume of generic drugs sold worldwide. In the battle against COVID-19, India has been leading the way for the pharmaceutical and healthcare sectors worldwide. India supplied 115 million doses of the Covid-19 vaccine to developing nations in 2021. India is one of the top 20 exporters of pharmaceuticals, and during the 11th plan period, exports increased dramatically at a CAGR of almost 19%. India exports medicines to 200 nations worldwide, including the USA, UK, and other markets that are subject to strict regulations. India may not have a strong health infrastructure, yet it is undoubtedly the world's top supplier of pharmaceutical goods. Over 50% of the world's demand for vaccines is fulfilled by Indian Pharma, and so is 40% of the demand for generic drugs in the US, and 25% of the total demand for medicines in the UK. According to specialists, this is a chance for the Indian pharmaceutical industry to build on its strengths and implement significant changes to re-ignite innovation-led industrial growth and reach the goal of $130 billion by 2030.

Keywords: *Indian Pharmaceutical Industry, Domestic Market, Generic drugs, CAGR (Compound Annual Growth Rate).*

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Preparation and Evaluation of Encapsulated Niosomes of Hesperidin

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Abstract: Hesperidin is a polyphenol in the subclass of flavonoids. It is found in citrus fruits. It is good for cardio metabolic health, good for gut, and good for cognitive function. But it has low bioavailability due to rutinoside moiety which is attached to flavonoid. Thus novel drug delivery system has been used to overcome the problems. Encapsulated Hesperidin tends to increase oral bioavailability, stability, in vitro drug release, therapeutic efficacy. Niosomes are novel drug delivery system. Niosomes are bilayer non ionic surfactant which the medication is encapsulated in a vesicle.

Keywords: *Niosomes, Hesperidine, Encapsulation, Efficiency.*

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Artificial Intelligence in Diagnosis of Gastric Cancer

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Abstract: Artificial intelligence is the theory and development of computer system that allows machines to work efficiently and solve problems. In healthcare, it is the most commonly employed technique to analyze and identify patterns in large, complex datasets. Through artificial intelligence, physicians can access processed patient history. Its applications include natural language processing, speech recognition, and machine vision. Nowadays AI tools are developed to aid screening tests for several kinds of cancer including gastric cancer. Gastric cancer is a disease in which malignant cells form in the lining of the stomach. Endoscopy is the most important tool for the detection and diagnosis of gastric cancer. Endoscopists can improve their diagnostic accuracy by using artificial intelligence as it has efficient computational power and learning capacity. It detects and differentiates gastric cancers more accurately and also can easily predict the depth of gastric lesions. A deep neural network is a good method in artificial intelligence for the prediction of gastric cancer. Small intramucosal gastric cancers that are relatively difficult to detect by endoscopists are detected by this method. There are some disadvantages of AI, it incurs a high cost, it lacks creativity and it leads to unemployment.

Keywords: *Gastric cancer, Artificial intelligence, Endoscopy, Deep neural network.*

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A Comprehensive Review on the Effects of Dulcolax Suppositories

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Abstract: Suppositories are small round or cone-shaped special type of solid dosage form which are prepared by cocoa butter or glycerine, melts or dissolves at body temperature. A suppository is inserted into the suitable body cavities like rectum, vagina, or urethra and the drug is absorbed into the bloodstream followed by its release. Nowadays, Dulcolax is the most widely used suppository which is available in the market. Dulcolax suppositories, containing 10mg of bisacodyl, which are torpedo-shaped, smooth and white or slightly yellowish in colour. The suppositories are individually foil-wrapped. Dulcolax suppository contains 10 mg of bisacodyl as the active ingredient, and inactive ingredient is hard fat as the suppository base. Some directions are followed before use Dulcolax suppositories. This drug does not contain lactose, sucrose. Dulcolax should be used as needed to relieve constipation. If someone has taken large dose of Dulcolax (overdose), then he or she may face some side effects such as diarrhoea, abdominal cramps, fluid loss, and an imbalance of salts in the body. Sometimes it may be misused as a habit-forming drug. Dulcolax is recommended for short-term use only. Adverse effects of this drug are ischaemic colitis, abdominal cramps, pain, nausea, vomiting, diarrhoea, blood in the stool, dehydration, dizziness, and fainting. Dulcolax should be stored in a cool dry place maintaining the temperature below 25°C.

Keywords: *Suppositories, Dulcolax, Bisacodyl, Ischaemic colitis, Constipation.*

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Potential of Traditional Herbs in the Prevention of Epilepsy : A Review

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Abstract: Epilepsy is a chronic disorder of central nervous system that is characterized by the abrupt and synchronized neuronal current discharge in the brain, which can lead to a temporary brain malfunction. Epilepsy seizures have been linked to various mechanisms, including neurotransmitter imbalance, synaptic recombination, and glial cell proliferation. Almost 80% of the world's epileptic population is in low and middle-income nations. Treatment of epilepsy is largely relied upon drugs of synthetic background, and these drugs have wide range of adverse reactions related with central nervous system. Therefore, a drug with low adverse effects and with good therapeutic action is required to treat epilepsy. The use of herbal medicine for antiepileptic treatment is common, although there is no scientific evidence for effectiveness or safety of most of the herbs. In addition, herbal medicine needs to be evaluated based on evidence. In case of treatment of epilepsy with herbs, traditional Chinese medicine is unrivalled. Anti- inflammatory, anti-oxidative, and GABAergic impact enhancing the NMDA channel and sodium channel regulation, and neuroprotective benefits. Herbal remedies like *Ginkgo biloba* and *Huperzia Serrata*, etc., among many others, have been said to have either antiepileptic or pro-convulsant properties. This review is focused to recapitulate the effects of traditionally used herbs in the treatment of epilepsy.

Keywords: *Epilepsy, Ginkgo biloba, Huperzia Serrata, Anti-inflammatory, Anti-oxidative.*

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Analgesic Activity of Hydro-alcoholic Extract of *Terminalia paniculata*

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Abstract: The present investigation was evaluating the Analgesic activity of hydro-alcoholic extract of *Terminalia paniculata* Roth. (Family: Combretaceae). The hydro-alcoholic extract of *T. paniculata* showed analgesic activity. The antinociceptive response using writhing and tail immersion test in mice were examined. The extract exerted protective effects on heat-induced pain in mice at tested dose (100 and 200 mg/kg). Although these results provide a support for the traditional uses of bark of *T. paniculata* for the treatment of pain.

Keywords: *Terminalia paniculata, hydro-alcoholic,tail immersion test, analgesic activity.*

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An Overview on Antioxidant andtheir Role in Human Body

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Abstract: Antioxidants are man-made or natural substances that may prevent or delay some types of cell damage. Antioxidants are found in many foods, including fruits and vegetables. Although oxidation reactions are crucial for life, they can also be damaging; plants and animals maintain complex systems of multiple types of antioxidants. In present time various antioxidant found in food viz. natural antioxidants, synthetic antioxidants, dietary antioxidant, endogenous antioxidant which play a important role in preservation of food. Antioxidants play a vital role in both food systems as well as in the human body to reduce oxidative processes and harmful effects of ROS. Synthetic antioxidants had been developed to have a standard antioxidant activity measurement system to compare with natural antioxidants and to be incorporated into food. In the past years, the importance of antioxidants in the protection of organisms or tissues, or of non-living systems against oxidative stress has become evident. Different antioxidant methods have been introduced to measure and investigate the antioxidant. It is generally assumed that the ability to act as hydrogen donor and the inhibition of oxidation are enhanced by the increase of the number of hydroxyl groups in the phenol ring. Phenolic compounds are a much group of phytochemicals that are widely distributed in plants such as fruits, vegetables, tea, olive oil, tobacco and so on. Nowadays, there is a growing interest in substances exhibiting antioxidant properties, which are supplied to human organisms as food components or as specific preventive pharmaceuticals.

Keywords: *Antioxidants, method, types of antioxidants, recent research.*

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The Nano-Encapsulated Phytochemicals Used for Obesity Management

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Abstract: Obesity is a serious health complication in almost every corner of the world. Excessive weight gain results in the onset of several other health issues such as type II diabetes, cancer, respiratory diseases, musculoskeletal disorders (especially osteoarthritis), and cardiovascular diseases. As allopathic medications and derived pharmaceuticals are partially successful in overcoming this health complication, there is an incessant need to develop new alternative anti-obesity strategies with long term efficacy and less side effects. Plants harbor secondary metabolites such as phenolics, flavonoids, terpenoids and other specific compounds that have been shown to have effective anti-obesity properties. Nanoencapsulation of these secondary metabolites enhances the anti-obesity efficacy of these natural compounds due to their speculated property of target specificity and enhanced efficiency. These Nanoencapsulated and naive secondary metabolites show anti-obesity properties mainly by inhibiting the lipid and carbohydrate metabolizing enzymes, suppression

of adipogenesis and appetite, and enhancing energy metabolism. This review focuses on the plants and their secondary metabolites, along with their nanoencapsulation, that have anti-obesity effects, with their possible acting mechanisms, for better human health.

***Keywords**: obesity; nanoencapsulation and secondary metabolites.*

BCDACPT/P-36/2022

A Review on Ocular Inserts for Control Drug Delivery

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Abstract: An ocular insert represents an advanced technology in eye disease therapy. Designing and development of an ocular insert is a challenge ever faced by pharmaceutical researchers or manufacturer. Eye drops have ever found to be an easy remedy from the administration point of view. In case of conventional dosage forms the fast precorneal loss of drug has been a major difficulty. To improve ocular drug bioavailability, there are significant guidelines have been directed towards newer drug delivery systems for ophthalmic administration. By means of ocular insert, the researcher has always taken efforts to release the drug at controlled rate to avoid frequent administration of drug. The ocular insert consists of controlled Drug release. Ocular insert are the new drug delivery systems which are prepared in such a way that they release the drug at predetermined and predictable rates which eliminates the problem of the frequent administration of the drug. Ophthalmic inserts are defined as sterile preparations, with a thin, multi-layered, drug-impregnated, solid or semisolid consistency devices placed into cul-de-sac or conjunctival sac and whose size and shape are especially fabricated for ophthalmic application. Ophthalmic inserts offer many advantages over conventional dosage forms such as increased ocular residence, sustained release, accurate dosing, and reduced dose frequency. The release of drug from the insert depends upon the diffusion, osmosis, and bio erosion of the drug and this article is an attempt to present a brief about this newer drug delivery system.

***Keywords:** Control release, bioavailability, diffusion, ocular inserts.*

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Centchroman: The Only Non-Steroidal Once-A-Week Oral Contraceptive

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Abstract: Centchroman (International non-proprietary name: Ormeloxifene) is a reversible non-steroidal post-coital per weekly oral contraceptive (half-life of about 168 hours) synthesized at the Central Drug Research Institute, Lucknow which is the only non-steroidal oral contraceptive in clinical use globally in recent times. It acts by preventing implantation of blastocyst in endometrium. It is the only contraceptive which neither suppresses ovulation nor interferes with the hypothalamic pituitary-ovarian axis. It has high level of safety and is free from side effects except for a delay in about 8% menstrual cycles which is not confined to any women per cycle. It has a failure rate of about 1-2% with ideal use which is slightly less effective than combined oral contraceptive pills. Besides contraception, these selective

estrogen receptor modulators (SERM) are also clinically useful in the management of dysfunctional uterine bleeding, mastalgia and fibro adenoma and has promising therapeutic efficacy in a variety of cancers including breast cancer. Due to estrogenic activity, this drug also has anti-osteoporotic and cardio protective activity. This poster focuses on the mechanism of action of Centchroman explaining the reason behind it being a weekly oral contraceptive and also making it user friendly.

Keywords: *Centchroman, contraception, SERM, Ormeloxifene.*

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Malignant Tumors of the Larynx

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Abstract: Laryngeal cancer is a disease in which malignant (cancer) cells form in the tissues of the larynx. Cancer happens when specific cells grow uncontrollably and as they multiply, they invade and damage the body. The mutations that damage cells in your larynx are often due to smoking. They can also be the result of heavy alcohol, poornutrition, human papillomavirus exposure, immune system problems. Signs and symptoms of laryngeal cancer include a sore throat and ear pain. Some cases of laryngeal cancer arise without known risk factors. The survival rate for throat cancer depends on the stage of cancer, the type, and where it occurs. Staging gives an idea of how far cancer has spread. For throat cancer, stages typically described in these categories: Stage 0 (carcinoma in situ), stage 1 (cancer has formed), stage 2 (cancer is in the larynx only) stage 3 (laryngeal cancer depends on whether cancer has spread from the supraglottic glottis, or sub glottis) stage 4 (cancer is spread through the thyroid). Various tests help in the determination of the extent of the cancer and the ways to treat it. They are radiation therapy, surgery, chemotherapy, and newly introduced targeted therapy, radio-sensitizers. Treatment for laryngeal cancer may cause side effect. Further clinical trials and follow up tests may be needed.

Keyword: *malignant, invade, survival, mutations, exposure, immune, carcinoma, therapy.*

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Dostarlimab: An Innovation in Realm of Oncology

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Abstract: The 19 million cancer cases reported worldwide in 2021. In colorectal cancer there are 10% cases of recovery & 9.4% cases of death. Previously FDA approved five drugs used for CCR (Clinical complete response) therapy which have very harmful side effect of high level. Dostarlimab is an anti-PD-1 monoclonal antibody, made from "Identical immune cells" that are all clones of a specific parent cell. It is previously used to treat endometrial cancers and has a mechanism of action that is inhibiting the PD-1/PD-L1. A small clinical trial done by "Memorial Sloan Kettering Cancer centre", which is about repairing of mismatched deficient stage II or III rectal adeno-carcinoma. It was discovered that every single rectal cancer patient who got an experimental treatment recovered from their disease, in what looks

to be a miracle and '*First Time In History*'. Patients had a clinical complete response after completion dostarlimab therapy would proceed without chemoradiotherapy & surgery.

Keywords: *Monoclonal Antibody, Adenocarcinoma, Immune Cell.*

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PxyisMedstation : An Automated Prescription Drug Dispensing System

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Abstract: People rely on computer-based devices for a variety of daily tasks in 21st century lifestyles. Worldwide, over 200 million individuals use the Internet. People use the internet to buy travelling tickets, book hotels, trade stocks, keep themselves updated about the latest news. Advanced technologies are also being introduced in healthcare system, especially in the United States and in many other parts of the western world in the name of PxyisMedStation. Pharmacists are using PxyisMedStation in order to dispense prescription drugs automatically. It's high time that the automated prescription drug dispensing system be put into work in India too. Due to a substantial lack of medical personnel in India, patients are left unattended for several hours. This issue can be resolved if the workload for each employee is cut back, and one method to do this is to lessen the amount of time they spend making the same repetitive trips from the patient's room to the pharmacy to administer medications. By developing a remotely situated machine that can be positioned at the appropriate location to autonomously dispense medications, this effort can be reduced. PxyisMedStation uses a storage (centralized or decentralized) to collect and store data about the patient, the prescribed drugs and their time and the correct ways of administration for the ease of the pharmacists. With the growth of concerns in the field about clinical pharmacy the automated prescription drug dispensing system will bring real positive results in the practice of drug delivery.

Keywords: *PxyisMedStation, clinical pharmacy, computer-based devices, remotely situated machine.*

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Emergence of IER: A Modern Approach in Controlled Release Drug Delivery System

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Abstract: An ion exchange resin (IER) is a cross-linked, water-insoluble polymer that contains either an acidic or basic functional group and has the ability to exchange counter ions. Due to their adaptable properties as drug delivery systems, IER is a current topic of interest. Recent studies have shown that IERs are equally suitable for all drug delivery routes such as controlled release, nasal, transdermal, topical and taste masking. The effectiveness of an ion exchange resin is primarily influenced by its physical properties, such as porosity, degree of cross-linking, acid-base strength, stability, purity, and particle size. For better drug retention and dose release, an IER or controlled or sustained release system is used. Synthetic exchange resins are used in pharmaceuticals for taste masking and controlled drug release.

Resins are mainly used forcation exchangers because they contain suitable substituted acid groups such as carboxylic and sulfonic acid or anionic exchanger for containing basic groups such as a quaternary ammonium group for exchange. Several studies have reported the use of IER for drug delivery to the target site in organism. Sulfonate and carbon resins based on polystyrene are most commonly used in clinical medicine.

Keywords: *Ion exchange resins, cation exchange, anion exchange, taste masking, controlled release.*

BCDACPT/P-42/2022

GXP: A Regulatory Approach for Improving Quality Aspects in Pharmaceutical Industries

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Abstract: GXP is regulation and collection of guidelines based on biological and pharmaceutical products to ensure the products safety, usage and processing methods. Food and Drug Administration established GXP, where it is good practice of variable components like manufacturing, laboratory, documentation, clinical etc. GXP regulations do include many varied regulation sets; the most common are GCP, GMP, and GLP, which ensures manufacturing, storage processes and procedures that further studies laboratory and clinical trial of drugs by regulatory organizations to protect consumers at different level in Pharma, food and medical industries. In Pharmaceutical industries, the most common problem that needs to be addressed is the safety and due to regulatory compliance and integrity protection, the pharmaceutical industries are not comparatively aggressive in adopting technology as compared to other industries. In this field, cost-effective technology is less of a priority than compliance-effective technology. GXP is a set of regulations aimed at resolving this issue in a systematic and healthy manner. GXP should be considered as the important requirements because it provides framework for continuous quality improvement. In many beneficial respects, the pharmaceutical industries have been rigorously institutionalised as a result of this revolution. By applying the knowledge of the quality regulations described in the GXP guidelines, a company can greatly improve its product quality for the benefit of society.

Keywords: *GXP, GCP, GMP, GLP, good practice, products safety, clinical trial, quality regulation.*

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Vegan Gelatin: An Alternative to Animal Source Gelatin for Capsule Shell Production

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Abstract: The daily care of one's health includes capsules. The origin of the capsule users is using vegetarian or not has recently become a controversial subject. The production of capsule shells is one of the primary uses of gelatine in the pharmaceutical sector. Many people today choose to follow a vegan diet and cannot eat gelatine made from animal products such skin, bones, tendons, or ligaments. The complex carbohydrate cellulose, which is present in green plants, is used to make vegetable-based capsules. On the basis of their origin, vegetarian and non-vegetarian capsule shells can be distinguished as the two primary

categories of vegan and vegetarian capsules available today. The current review aims to give an overview of the physicochemical, pharmaceutical, and biopharmaceutical properties of Hydroxy-propyl-methyl-cellulose (HPMC), a material used to make capsule shells, and to compare their abilities in in vitro and in vivo testing and storage stability with those of gelatine as the HPMC capsule widens the options for choosing various types of fill materials and offers a highly adaptable and widely accepted platform that can address many issues now plaguing the pharmaceutical and nutraceutical sectors.

Keywords: *Gelatine, Vegetable Capsule, Hydroxy Propyl Methyl Cellulose Capsules.*

BCDACPT/P-44/2022

Role of Histamine in Late Complications of Diabetes

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Abstract: Histamine is a bioactive amine that acts as a signaling molecule and neurotransmitter, a biogenic vasoactive amine, that causes symptoms such as allergies and has a pleiotropic effect that is dependent on its interaction with its four histamine receptors. Histamine and histamine receptor-deficient animals show hyperphagia and disruption of feeding circadian rhythm and develop obesity, diabetes mellitus, hyperlipidemia, hyper-insulinemia, and disturbance of thermo-regulation and cardiovascular functions, fundamental marks of metabolic syndromes. Higher content of histamine is involved in long-term complications and has been reported indifferent studies and suggested to be involved in the pathogenesis of diabetic microvascular complications including diabetic retinopathy and other diabetes-associated vascular complications. The involvement of histamine in diabetes was related to vasoactive properties and permeability-associated leakage effects. The presence of histamine and histamine H3 receptors in pancreatic beta cells suggests a physiological role for the histaminergic system in the metabolism of insulin and the regulation of energy homeostasis as well. In the kidney, mast cells are present at a low number in normal conditions, but the numbers increase in the renal cortical area during chronic diabetic nephropathy. On further disease progression, the number and de-granulation status of mast cells increased, and promote renal inflammation and fibrosis. Our present study is to concentrate on the correlation of histamine research to explore the potential therapeutic exploitation of new drug targets and the involvement of histamine in diabetes.

Keywords: *Histamine, diabetes, diabetes nephropathy, diabetes neuropathy, vascular complication of diabetes.*

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Implementation of AI Services in the Improvement of Pharmacy Practice

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Abstract: Constant improvement of the quality of community pharmacy services is important in the development of contemporary patient care. However, low efficacy, off-target delivery, time consumption, and high cost impose a hurdle and challenges that impact drug

design and discovery. Artificial intelligence and machine learning technology play a crucial role in drug discovery and development. In other words, artificial neural networks and deep learning algorithms have modernized the area. Artificial Intelligence (AI) focuses in producing intelligent modelling, which helps in imagining knowledge, solving problems and decision making. The role of artificial intelligence (AI) and deep learning (DL) models is attracting increasing global interest in the field of pharmacy. DL models are considered the current state-of-art among the AI technologies. In fact, DL systems have the capability to recognize, quantify and describe pathological clinical features like pre-clinical studies, in vivo assays, and microarray analysis. In this article, an application of AI in community pharmacy is discussed which includes discussion of SWOT analysis that is used to help us identify results related to project planning, to identifying problems in practice that could benefit from this application as well as some key limitations.

Keywords: *Artificial Intelligence, SWOT analysis, deep learning, community pharmacy.*

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HIV-1 Vaccine Development - Its Hurdles And Future Directions

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Abstract: HIV (Human immune deficiency virus) is a member of group of viruses called retrovirus. When the Viral infection occurs, the virus enters into the macrophages where its RNA genome replicates to form viral DNA using the enzyme reverse transcriptase then the viral DNA incorporates into the host cell and use its machinery to produce more virus particles and attacks the Helper T-lymphocyte which leads to rampant adverse developments as the body's immune system is unable to identify any pathogen when enters. The virus mostly enters our body via body fluids. HIV-1 infection causing AIDS still remains a global health challenge particularly in developing countries. Developing a vaccine preventing HIV-1 infection tends to be very challenging one due to the extensive genetic variability of HIV-1 and our limited understanding of immune response required to protect against HIV infections. Difficulties raise more due to disappointing clinical trials and funding issues to carry out further research. Some clinical trials stated the safety and efficacy of HIV vaccine. But still there are question regarding the protection and the efficiency to stimulate it. The strategies to deliver Novel HIV vaccine based on induction of highly potent neutralizing antibodies and use of novel homologous and heterologous vector systems. To end this epidemic two possible immunization strategies are considered a) therapeutic vaccine b) prophylactic vaccine.

Keywords: *Vaccine, efficacy, Virus, Immunity, HIV-1, clinical trial*

BCDACPT/P-47/2022

Aldose Reductase: Target for Development of Intervention for VariousDiabetic Complications

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Abstract: Diabetes is a chronic health condition that affects the process involved in our body to turn food into energy. Prolonged exposure to chronic hyperglycaemia in diabetes can lead

to various complications like cardiovascular, renal, neurological, visual system such aslens, retina, nerves and kidney. Different mechanisms such as increased AR polyol pathway, increased advanced glycation end product formation, and excessive oxidative stress are involved in this process. Aldose reductase (AR) is an enzyme in the polyol pathway. It catalyses the reduction of glucose to sorbitol, leading to excessive accumulation of intracellular reactive oxygen species (ROS) in various tissues of diabetes mellitus including the heart, vasculature, neurons, eyes, and kidneys. In this review, we will highlight the involvement of AR in the pathogenesis of various diabetic complications and various models to screen AR inhibitor which is emerging therapeutics strategy to prevent diabetic complication.

Keywords: *Diabetes, Aldose reductase, Polyol pathway, Hyperglycaemia*

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Aflatoxin: A Matter of Concern for Health Safety and Its Detection

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Abstract: Aflatoxins are fungal poisons or toxin produced by molds in defiled foods and feeding derivations. Two closely related fungi (*Aspergillus flavus* and *Aspergillus parasiticus*) are primarily responsible for the production of aflatoxins which have a major impact on Animal health. As they, are one of the most carcinogenic composites in foods and feedings. That is, we somehow posed a risk of aflatoxin-related health problems or effects on both humans and animals consuming contaminated food and feed. Aflatoxins also have some serious impacts on agricultural and dairy products and food safety. So firstly, detection of aflatoxins is a matter of concern also analytical styles and processes for discovery and quantification of aflatoxins should be specific, sensitive, dependable, and easy to carry out. Different type of chromatographic, immunochemical, and spectroscopic methods are generally carried out to trace the aflatoxins present in foods. The developing world, which has the highest prevalence of aflatoxin exposure, has limited access to these methods of testing procedures also may be too expensive for routine use. Here this is to give guidance and awareness about global aflatoxin regulations and logical and cultural styles for the determination of aflatoxins to light-up human and animal safety.

Keywords: *Aflatoxin, Agricultural Aspect, Carcinogenicity, Detection, Regulation.*

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Dyslexia and Its Effect on Child Psychology

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Abstract: Dyslexia is one of the most common neurobehavioral disorders. Children with dyslexia usually suffer from negative, behavior personality problems, and impacted life quality. It is a specific learning disorder that stems from the lack of ability to decode words and is usually reflected in the ability to process sounds. This ability to decode is not related to intelligence, age, sensory abilities, other cognitive abilities, or general developmental disorders. Dyslexia is manifested by difficulties inaccurate word recognition and poor

performance in reading and writing. Children with dyslexia lag behind normal children in visual cognition and sequential motor skills, and children's learning motivation is also an important cause of dyslexia. It is one of the most common neuro-developmental disorders in children. Therefore, it is important to understand the behavior and personality characteristics of children with dyslexia and explore the factors that are related to dyslexia. In this article we will be focusing on the causes, types, diagnosis and treatment of dyslexia which might be beneficial in improving and managing the daily life of children who struggle to read and learn normally.

Keywords: *Dyslexia, Children, behavior personality problems, cognitive abilities, neuro-developmental disorder.*

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A Review on Nature-Based Benzimidazole, Piperazine, and Spiroindole Derivatives for the Development of Antihelminthic Drugs

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Abstract: Human and animal infections with gastrointestinal nematodes are a major global health and economic problem. As per WHO, around 24% of the global population is affected bysoil-transmitted helminthic infections. Infections are common across the tropics and subtropics but are most prevalent in parts of the Americas, Sub-Saharan, East Asia, China, and Africa. These infections are caused by parasitic worms that live in the soil and enter the body through the skin. Abdominal pain, diarrhea, and weight loss are common symptoms, treated with antiparasitic medications. Infections are most common in children who play in contaminated soil and often have poor hygiene practices. Adults can also be infected through their work in agriculture or have contact with contaminated soil. In the medical field, anthelminthics are among the most often used medications. Traditional chemical families such as Benzimidazoles, Piperazine, Macrocyclic lactones, and Spiroindoles derivatives are all included. These derivatives are effective in the development of anthelminthic drugs. These molecules have a wide range of activity against different helminths, including those resistant to current drugs. In addition, they have low toxicity and are well tolerated by patients. Newer anthelmintics such as emodepside, derquantel, and tri-ben-dimidine are also considered. Since vaccines against most parasite species are not currently under development, anthelmintic medications will continue to be necessary for the control. Therefore, watching for signs of treatment resistance in parasite populations is crucial. In this paper, we will comprehensively understand the availability, development, and mechanism of action of these naturally occurring Benzimidazoles, Piperazine, and Spiroindoles derivatives which produce Anthelmintic effects.

Keywords: *Benzimidazoles, Spironidoles, Piperazines, Anthelminthic, parasites.*

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The Role of Antioxidant in Anti-Aging

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Abstract: Antioxidants are the molecules that reduce the chance of ageing by diminishing or maintaining the level of oxidants with or without free radical activity. Therefore, to many people, “antioxidants” and “anti-aging” go hand-in-hand. Antioxidant is an effective approach to prevent symptoms related to photo-induced aging of the skin. Intracellular and extracellular oxidative stress initiated by reactive oxygen species (ROS) advance skin aging, which is characterized by wrinkles and atypical pigmentation. Because UV enhances ROS generation in cells, skin aging is usually discussed in relation to UV exposure. The identification of free radical reactions as promoters of the aging process implies that interventions aimed at limiting or inhibiting them should be able to reduce the rate of formation of aging changes with a consequent reduction of the aging rate and disease pathogenesis. The free radicals present bring about a change in the ageing process as they inhibit the formation of free radicals which brings about a consequent change in the aging rate. Excess generation of free radicals may overwhelm natural cellular antioxidant defenses leading to oxidation and further contributing to cellular functional impairment. The identification of free radical reactions as promoters of the aging process implies that interventions aimed at limiting or inhibiting them should be able to reduce the rate of formation of aging changes with a consequent reduction of the aging rate and disease pathogenesis. Between aging and antioxidants, the rate of ageing is predicted to be more important than lifespan. Therefore, in a life span, slowing the process of ageing is more important. At such a stage of having more chance of premature aged population in future, animal and plant sources of antioxidants and vitamins are more preferred and therefore, suggested to be more researched.

Key Words: *Antioxidants, anti-aging, aging, disease, oxidative damage.*

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Benefit of Micronutrients in Human Health

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Abstract: Micronutrients have historically supported the immune system by preventing vitamin C deficiency and treating scurvy. Since then, it has become evident that a wide range of specific micronutrients, such as the vitamins A, D, C, E, B6, and B12, folate, zinc, iron, copper, and selenium, are necessary for the complex, integrated immune system because they play crucial, frequently synergistic roles at every stage of the immune response. Physical barriers and immune cells must operate properly, thus adequate levels are crucial. However, the daily micronutrient intakes required to sustain immunological function may be higher than the current suggested dietary allowances. Some populations may not get enough micronutrients through diet, and conditions that enhance the need for micronutrients (such as infection, stress, and pollution) cause the body's reserves to decline even more. There could be deficiencies in a number of micronutrients, and even a slight one could affect immunity. In this article, we'll talk about the importance of taking supplements that contain a variety of micronutrients that strengthen the immune system and may even modify it to lower infection risk which will be beneficial of human health.

Keywords: *Micronutrients, immunological function, supplements, immunity.*

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Isolation of Phytoconstituents from Hydroalcoholic Extract *Terminalia paniculata*

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Abstract: The objective of the study was "Isolation of phyto-constituent from hydro-alcoholic extract *Terminalia paniculata*". The hydro-alcoholic extract was a reddish residue (3.7%). It gave positive sodium hydroxide test and sulphuric acid test for flavonoid. In TLC examination, the residue showed two spots (solvent system: ethyl acetate: ethanol -1:1) on spraying with 5% alcoholic H_2SO_4 followed by heating. The hydro-alcoholic residue was subjected to column chromatography over silica gel which afforded one compound named compound-01. The compound was characterized through chemical and spectral analysis and confirmed as 3',3,6,7-tetramethoxy-4',5,8-trihydroxy flavone.

Keywords: *Terminalia paniculata, hydro-alcoholic, column chromatography, 3',3,6,7-tetramethoxy -4',5,8-trihydroxy flavone.*

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Quality Of Life in Vitiligo Patients-Devastating Psychological Consequences

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Abstract: Vitiligo is the most prevalent cutaneous pigmentary disorder which characterises with loss of skin colour or white patches in skin, classified as an auto-immune disease that affects 0.5%-2% of the world- wide population. Vitiligo can be of two types, in segmental vitiligo, white patches only affect one area. Which is a stable vitiligo and in non-segmental vitiligo, symmetrical white patches appear. The exact etiology of vitiligo is unknown but there are different factors of pathogenesis like triggering factors, genetic factors, cellular factors and environmental factors. Vitiligo has a remarkable impact on patients' quality of daily life; they feel stigmatized and suffer from psychological disturbance. It is an important aspect of their attractiveness and a self-confidence. In India, a significant stigma vitiligo is considered as 'white leprosy'. Sometimes Vitiligo lesions exposed area can adversely effect of person's job interview that is the dark side of carrier. Vitiligo in childhood can be associated with psychological trauma that has long lasting effect on the personal self-esteem of these children. They are subjected to whispered comments, enmity and isolated from society. The chronic nature of disease, long term treatment, lack of effective therapy and unpredictable course of disease is usually very depressed for vitiligo patients. Severe depressions can lead the suicide attempts. Salzer and schallreuter reported that 75% of vitiligo patients are severely intolerable. The prevalence of moderate and sever stigmatization were 49.8% and 13.3%among patients those were assessed by DLQI (dermatology life quality index) and FSQ (feeling stigmatization questionnaire). It is important to identify and deal with psychological fact of this disease to improve their quality of life and to provide a better treatment response.

Keywords: *cutaneous, auto-immune, segmental, psychological trauma, leprosy, dermatology life quality index, feeling stigmatization questionnaire.*

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Novel Bioinspired Lipid Nanoparticles for Improving the Anti-Tumor Efficacy of Different Flavonoids against Breast Cancer : An Overview

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Abstract: Cancer is a group of diseases where cells divide abnormally, spreading to other parts of the body and destroying body tissue. As per "W.H.O", breast and lung cancer are the most common among other cancers. Breast cancer develops when abnormal growth and division of breast cells cause a mass of tissue in the breast. Flavonoids are a class of naturally occurring poly-phenolic chemicals that have recently attracted attention as potential cancer-treating agents. Fisetin (FS) is a naturally occurring flavonoid with anticancer characteristics; nevertheless, its in-vivo administration is complicated by its low aqueous solubility. Flavonoids can alter essential cellular enzymes (Aromatase: estrogen-synthase) as an antioxidant agent of breast cancer. Normally aromatase converts androgen into estrogen for sexual development before birth & during puberty. But for cancer patients, it accumulates fat in the connective tissue; enlargement of the breast occurs, causing breast cancer. As a result of the speedy and sensitive detection offered by nanotechnology, scientists can now detect molecular changes in even a small percentage of cells associated with cancer. They can target cancer cells specifically, with minimal collateral damage to healthy tissue. Their small sizes (1-100 nm) have several desirable properties, including biocompatibility, lower toxicity, superior stability, increased permeability and retention effect, and pinpoint targeting. Specially designed nanoparticles deliver medicines to the target and can easily cross cell barriers. Nano cochleates are lipid-based supra-molecular nanoparticles made up of negatively charged Phospholipid & divalent cations (Ca^{2+}, Mg^{2+}), increasing anticancer activity and acting as a good oral delivery vehicle. This approach will help us to modify future breast cancer treatment.

Keywords: *Flavonoids, breast cancer, nanoparticles, Fisetin, biocompatibility, Nano cochleates.*

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Zebrafish: A Multi-Purpose Model for Investigating Developmental Toxicity

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Abstract: Over the past decade, zebrafish are being increasingly used in assessing the effects of chemical compounds. Zebrafish have several advantages compared to other vertebrate models used in modeling human diseases, particularly for large-scale genetic mutant and therapeutic compound screenings, and other biomedical research applications. With the impactful developments of CRISPR and next-generation sequencing technology, disease modeling in zebrafish is accelerating the understanding of the molecular mechanisms of

human genetic diseases. Therefore, zebrafish assays are ideal for evaluating multiple organ toxicities simultaneously that contrast in vitro assays performed on cultured cells or tissue explants and organ slices. These efforts are fundamental for the future of precision medicine because they provide new diagnostic and therapeutic solutions. This article focuses on zebrafish disease models for biomedical research mainly in burn wound model.

Keywords: *Zebrafish, disease model, burn wound model.*

BCDACPT/P-57/2022

Current Scenario of Regenerative Medicine

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Abstract: Due to immunogenic rejection and a lack of a qualified organ donor, clinical tissue implantation is compromised, which contributes to the significant loss of human life. In order to address the issue of tissue injury-related death, Langer and Vacanti introduced artificial tissue regeneration in 1993, revolutionizing the area of surgical organ transplantation. There is no question that the term "regenerative medicine" has opened a new area for tissue rebuilding, but problems with cell machinery, supporting biomaterials, and growth factors need to be overcome before its application may be broadened in a flexible way. The chapter would give a thorough overview of artificial tissue regeneration while establishing a triangle-shaped interaction between cells, matrixes, and growth factors and emphasizing the need for biomedical instruments as an alternative to organ transplantation. The research in the field of tissue engineering and regenerative medicine is exponentially growing to meet the demands for organ transplantation. The advantage of tissue engineering over conventional organ transplantation is the personalized development of whole organ or a particular part of the organ. To meet these organ demands, there are various approaches of tissue engineering such as traditional approach of using scaffold to grow cells and advanced 3D printing technology. The inkjet bioprinters are used along with bio-ink for bio-fabrication of different organs. The other bio-printing techniques such as extrusion-based and laser-assisted bio-printing can also be employed based on the requirement. The extracellular matrix (ECM) materials are used as a bio-ink but are limited largely to non-vascularized organs.

Keywords: *Biomaterials, Biocompatibility, Extracellular matrix, Therapeuticmolecules, Regenerative medicine*

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Novel Approaches for Insulin Delivery

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Abstract: In modern day, diabetes mellitus has become a major chronic disorder in almost every household. For diabetes management, a major faction of patients has to depend on insulin. The major drawback of insulin therapy is considered as its mode of administration. To improve patient compliance, pharmaceutical researchers have investigated the alternative routes of administrations. Several novel approaches were reported to have a satisfactory safety and efficacy profile. Amongst all the delivery techniques, oral delivery, delivery

through lungs, nasal delivery, colonic delivery, delivery through skin using painless carrier have shown promising results. Various drug delivery systems through different routes were also investigated, which includes micro and nano-particulate drug delivery, insulin tablets, hydrogel based delivery systems, microneedle-based delivery systems etc. The progress in insulin delivery reflects the possibility to pain free insulin delivery systems in near future.

Keywords: *Insulin, Diabetes mellitus, Novel delivery approaches, oral insulin delivery, Microneedle based insulin delivery.*

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Microemulsion as Novel Drug Delivery System

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Abstract: Micro-emulsions are clear, stable, isotropic mixtures of oil, water and surfactant, frequently in combination with a co-surfactant. These systems are currently of interest to the pharmaceutical scientist because they stabilize the solution by decreasing interfacial tension between these two components of their considerable potential to act as drug delivery vehicles by incorporating a wide range of drug molecules. It is used for drug delivery across skin; they also increase drug penetration through biological membranes. The properties of micro-emulsion e.g., extremely low interfacial tension, high solubilizing potential, small droplet diameter, and low viscosity can be useful in various fields. The main objective of this review is to highlight the significance of Microemulsions having a very crucial role in the drug delivery system as well as in the industrial process. In addition, we will also highlight that they can be used to optimize drug targeting without a concomitant increase in systemic absorption, its role in providing novel solutions to overcome the problems of poor aqueous solubility of highly lipophilic drug compounds and provide high, more consistent and reproducible bioavailability.

Keywords: *Microemulsions, drug targeting, drug penetration, systemic absorption.*

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Hypertension and Its Treatment by Herbal Product

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Abstract: Hypertension is the most common modifiable risk factor for death and disability including stroke, accelerated coronary and systemic atherosclerosis, heart failure, chronic kidney disease, lowering the BP with antihypertensive drugs, and reducing the target organ damage and prevalence of the occurrence of cardiovascular disease. According to the 2017 American college of cardiology (ACC)/American heart association (AHA) hypertension guidelines hypertension is defined as systolic BP is ≥130 mmHg or diastolic BP is ≥80 mmHg. BP should be lower than 130/80 mmHg in patient with CHD, CHF, after renal transplantation, diabetes mellitus and stroke. Recommended lifestyle modification included restriction of dietary sodium intake, weight loss if patient is overweight, regular exercise, moderate alcohol intake and increase consumption of potassium rich foods. The initial antihypertensive agent should be generally selected from one of the following four classes—

thiazide diuretics, ACE inhibitors, ARBs, and calcium channel blockers, shown to reduce cardiovascular events. There are two interventional approaches—Renal Denervation and Baroreflex activation therapy, which are used in clinical practice for treatment of several treatment resistant hypertensions. Other interventional approaches are carotid body ablation and AVF placement but none of them prevent cardiovascular disease outcome or death in hypertensive patient.

Keywords: *Hypertension, Treatment, Herbal Product, Therapy.*

BCDACPT/P-61/2022

A Brief Review on Green Tea Extract Antioxidant and in Human Body

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Abstract: Green tea (*Camellia sinensis*) is a kind of unfermented tea that retains the natural substance in fresh leaves to a great extent. It is regarded as the second most popular drink in the world besides water. Nowadays, multiple pharmacologically active components have been isolated and identified from green tea, including tea polyphenols, alkaloids, amino acids, polysaccharides, and volatile components. Recent studies have demonstrated that green tea shows versatile pharmacological activities, such as antioxidant, anticancer, hypoglycemic, antibacterial, antiviral, and neuroprotective. Many of these beneficial effects of green tea are related to its catechin, particularly (-)-epigallocatechin-3-gallate, content. There is evidence from in vitro and animal studies on the underlying mechanisms of green tea catechins and their biological actions. There are also human studies on using green tea catechins to treat metabolic syndrome, such as obesity, type II diabetes, and cardiovascular risk factors. Long-term consumption of tea catechins could be beneficial against high-fat diet-induced obesity and type-II diabetes and could reduce the risk of coronary disease. Studies on the toxic effects of green tea extract and its main ingredients have also raised concerns including hepatotoxicity and DNA damage. Further research that conforms to international standards should be performed to monitor the pharmacological and clinical effects of green tea and to elucidate its mechanism of action. The Summery is green tea can be used to assist the treatment of diabetes, Alzheimer's disease, oral cancer, and dermatitis. Consequently, green tea has shown promising practical prospects in health care and disease prevention.

Keywords: *Green tea, unfermented tea, phytochemistry, pharmacology, toxicology, human health.*

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Development of Co-Processes Excipients for Fast Dissolving Tablets of Carvedilol by Multivariate Analysis and QBD

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Abstract: *Purpose*: Direct compression is a mostly used and required process in the pharmaceutical industry. The co-processing is the most widely explored method for the

preparation of directly compressible excipients. The present research work was targeted to develop a novel directly compressible co-processed excipient to prepare fast disintegrating tablets of Carvedilol. *Methods*: From the preliminary trials, Lactose was selected as a directly compressible excipients and sodium starch glycolate was used as a super disintegrant. PEG 4000 was used as the binder from the preliminary batches. A melt agglomeration technique was selected to prepare the suitable co-processed excipient. Co-processed excipient was optimized by a central composite design where the concentration of binder (X1) and concentration of disintegrant (X2) was selected as independent variables from the preliminary studies. Carr's index, wetting time, disintegration time, and Friability were selected as dependent variables as they were having the highest effect on co-processed excipient and tablet properties. *Results*: The optimized co-processed excipient was characterized by Kawakita's and Kuno's analysis, Heckel plot analysis, granular friability index, and lubricant sensitivity ratio. Results of dilution potential revealed that poorly compressible drug; Carvedilol was sufficiently incorporated into co-processed excipient for the preparation of fast disintegrating tablets. An in-vitro dissolution study showed faster disintegration of the drug compared to the conventional tablets. Instrumental studies like FT-IR and DSC proved the compatibility of various materials with each other. *Conclusion*: The present investigation underlines the fact that co-processing may be adopted for the development of directly compressible adjuvant for the use in pharmaceuticals.

Keywords: *Co-processed excipients, Fast dissolving tablet, Carvedilol, Quality by design (QBD)*

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Various Gel Technologies for Topical and Transdermal Drug Delivery

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Abstract: Transdermal drug delivery system is one of the most interesting and mysterious research topics in pharmaceutical technology at present day &pharmaceutical products related to this system are getting more and more frequent and popular in global market. This system has developed for those patients, who cannot take medicines orally. This system eliminates the difficulties of administrating the drugs in various routes (i.e. oral, intravenous). Because of the impermeable nature of the skin, a suitable drug delivery vehicle has been developed. The medicine is applied in semisolid gel forms which have an external hydrophobic or hydrophilic solvent phase. This gel has application in various fields like food, cosmetics, Pharma-technology etc. Topically, gels are classified according to the nature of the liquid phase. Such as organogel (oleogels) contain an organic solvent, hydrogel (contain water). In recent studies discovered some gels for dermal drug application, such as pronisomal gels, emulgels, bigels and aerogels.

Keywords: *Aerogels, Bigels, Emulgels, Hydrogels, Topical, Transdermal drug delivery.*

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Artificial Intelligence in Surveillance, Diagnosis, Drug Discovery and Vaccine Development Against COVID-19

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Abstract: The COVID-19 vaccine developed with the help of artificial intelligence. It is essential to develop antiviral drugs and vaccines against SARSCoV-2. It usually needs a long time to develop a drug or vaccine using traditional methods but to try to accelerate this process, several studies have applied AI techniques to identify potential drugs and develop effective and safe vaccines for COVID-19. We have shown that AI achieved high performance in prediction and vaccine discovery for COVID-19. AI has the potential to enhance significantly existing medical and healthcare system efficiency during the COVID-19 pandemic.

Keywords: *Artificial intelligence, AI Application Drug, Coronavirus, discovery, Vaccine, diagnosis, Prediction.*

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An Overview: On Super Disintegrants

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Abstract: Disintegrants are compounds or mixtures of substances that are added to the medicine formulation to help the content of tablets or capsules break down or disintegrate into tiny particles that dissolve more quickly than they would otherwise. Because they have many advantages over other dosage forms, solid orals are the most common, with an approximate 85% market share. These formulations' medicinal efficacy is obtained in a conventional way, such as through disintegration and then dissolution. Therefore, disintegration plays a significant role in enhancing drug activity and is becoming more and more common among alternative dose forms. Super disintegrants are typically employed in solid dosage forms at modest concentrations, typically, 1% to 10% by weight of the dosage unit #39's total weight. The present study comprises the various kinds of super disintegrants which are being used in the formulation to provide the safer, effective drug delivery with patient's compliance. In this review article, more emphasis is given on application and usage of various super disintegrants comparing with other disintegrants in reference to available scientific studies. The various sources of super disintegrants and their modification to improve disintegration property are also high-lighted.

Keywords: *Super disintegrants, disintegration time, dissolution, tablets.*

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Antiarrythmic Drugs

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Abstract: Arrhythmias are a common cause of cardiovascular morbidity and mortality, affecting individuals with both normal and abnormal hearts. Medicines used to control abnormal heart rhythms are described as antiarrhythmic drugs; they form a broad class of pharmaceuticals with a variety of indications, mechanisms, and unique features. Like all medicines, antiarrhythmic drugs exert their effects by altering physiological processes. To understand how they work we need to identify the key features of cardiac electrical function and consider how this might be altered. Two concepts are central in this respect: ion channel function, the role of the atrioventricular (AV) node. Antiarrhythmic agents act by blocking the membrane sodium, potassium, and calcium channel, but no agent has exclusive action on a given type of channel. Arrhythmias resulting from reentry form the largest group of clinically significant arrhythmias. Most arrhythmias result from depressed sodium channel function. Arrhythmia causes by Impulse generation abnormality (abnormal automaticity), Impulse conduction abnormality (abnormal conductivity). Three most imp type of arrhythmias are seen. They are Atrial arrhythmias, Junctional arrhythmias, Ventricular arrhythmias. We have many risks in antiarrhythmic therapy, they are adverse reactions that either related to high plasma level (e.g. lidocaine induced tremor and quinidine induced cinchonism) or unrelated to high plasma level (e.g. procainamide induced agranulocytosis). A range of drugs are used to manage arrhythmia in both inpatient and outpatient settings. They alter cardiac electrical function by blocking ion channels or slowing conduction through the AV node and can be divided broadly into rhythm control and rate control drugs. Drug therapy aims to relieve the symptoms of arrhythmia, nut comes with a risk of adverse effect including bradycardia, heart block, and ventricular arrhythmia. This risk is increased in individuals with underlying heart diseases and with the use of sodium or potassium channel blockers; careful patient assessment and drug selection are therefore important. Monitoring in acute settings should include continuous ECG, as well as frequent observation and assessment of hemodynamic stability.

Keywords: *Antiarrhythmic drug, haemodynamic, ion channel, agranulocytosis, Bradycardia, Sodium channel, Potassium channel.*

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To Raise Consciousness about Banned Drugs-A Review

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Abstract: Drugs are used to save lives, but some drugs have side effects that can be avoided with the proper dosage. More negative consequences and side effects are associated with illegal drugs. On the Indian market, some illegal drugs are already available and frequently used without a prescription from a doctor. It's harmful to the liver and leads to irregular heartbeats, combinations being illegal in other countries, Indian Drug Regulatory Authoritieshave refused to prohibit the sale of 11 drugs including Furazolidone, Phenylpropanolamine, Cisapride, and Nimesulide. Although IPA has established various regulations and guidelines to control drugs, people continue to use them due to a lack of awareness. The most crucial functions of medical professionals are drug prescribing before being approved for human use. A single drug must go through stringent processes and drug

trials. However, due to the small number of volunteers used in the phased trials, none of the toxicities or adverse effects can be observed. These facts should prompt drug regulatory bodies to take immediate action to stop selling them. Similar pointless and irrational combinations circulate the markets without providing the patient with additional benefits. This review aims to raise awareness of drugs that are no longer used because they are unsafe, drugs that were once banned but were reintroduced.

Keywords: *illegal drugs, awareness, banned, markets, trials.*

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Preparation of Floating Tablet by Using Natural Polymer

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Abstract: The present study was carried out with an objective of preparation of floating tablet by using natural polymers. Floating tablet is a one type of Novel Drug Delivery System. This system is designed to retain the drug or the active pharmaceutical ingredient for prolonged period of time in the GI tract. For this purpose or to increase the buoyancy in enhancing gastro residence time (GRT) of the formulation we mainly used some natural, eco-friendly and safe environmental polymers. These polymers are biodegradable and non-toxic. For this purpose, various natural polymers are used but, for this study Tamarind gum is used. This gum is extracted from the tamarind tree, *Tamarindus indica*, also known as Tamarind xyloglucan. Tamarind gum is a polysaccharide composed of galactosyl, xylosyl, glucosyl. The ratio of these compounds is 1:2:3. This gum has some properties which give the floating property to the tablet and it is also used as binder, gelling agent, stabilizer and thickener in tablet formulation. The gum is prepared and ready to use in the formulation. The floating tablets are required to possess proper floating capability in gastric system and use of this polymer is very beneficial.

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Insulin Pill for Diabetic Patients

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Abstract: Insulin is a peptide hormone produced by the β-cell of the pancreas. This hormone enables the body to regulate the amount of glucose in blood. As per the studies it is reported that a capsule which contains an indigestible micro needle capable for injecting insulin into stomach lining can reduce blood sugar level. Using a large animal model, the researchers were able to deliver enough insulin to lower blood glucose levels which were comparable to levels achieved by subcutaneous injection. This new type of capsule could someday help diabetic patients and also beneficial for the patients who required therapies. The micro needle within the capsule is composed of compressed, freeze-dried insulin and biodegradable material and is designed to always land in the stomach in the same orientation. Once in the stomach the micro needle is decomposed causing the insulin to be injected into the lining of the stomach. In this article we will highlight the mechanism that works by releasing a sparing

that is freed by dissolving a supporting sugar disk and also about the capsule that moves harmlessly through the digestive system.

Keywords: *Insulin, blood glucose level, Microneedle, Biodegradable.*

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Gatekeepers in Mesoporous Silica Nanoparticles for Targeted Drug Delivery Systems: A Review

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Abstract: Mesoporous silica nanoparticles (MSN) are coming up as new alternatives for the targeted drug delivery systems. However, due to their hollow nature, MSN loaded drugs may get released prematurely. So, gatekeepers in MSNs are being developed to prevent the premature release of drug and achieving site-specific drug release. Gate-keepers are being developed to response only to the various stimuli to release the drug, leading to stimuli responsive drug delivery systems (SRDDS). Various wide ranges of materials ranging from polymers, inorganic metals to bio-macromolecules are being used as gatekeepers. Some gatekeepers may also act as drug along with its original role in TDDS. Gatekeepers are also being used for controlled drug release. MSNs with gatekeepers have shown promising results than the hollow MSNs in various site-specific diseases like cancers, osteoporosis, neurological diseases etc.

Keywords: *Gatekeepers, MSN, Targeted drug delivery systems, Stimuli.*

BCDACPT/P-71/2022

A Review on Different Vaccines for Covid-19

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Abstract: Corona virus, a single stranded RNA virus, indicates a broad spectrum of clinical manifestations such as respiratory compromise and multi-organ failure since December, 2019and becomes a great concern to the health care system globally. SARS-CoV-2, like other RNA viruses, is susceptible to genetic evolution with the emergence of mutations over time, resulting in mutant forms that may have distinct properties from its ancestral strains. This is true even when the virus adapts to its new human hosts. Several SARS-CoV-2 variations (α-(B.1.1.7), β-(B.1.351), γ-(P.1), Δ-(B.1.617.2), Omicron (B.1.1.529)have been identified throughout this epidemic, however only a small number are deemed to be variants of concern by the WHO owing to their effects on public health worldwide. As vaccination against all pathogens are necessary for maintaining and strengthening social health, different types of vaccines against SARS-CoV-2 namely Moderna (USA), Sputnik V (Russia)/AstraZeneca (India), Novavax (USA) and Covaxin (India)/Sinopharm (China) were developed on the basis of their mechanisms such as encapsulating mRNA, encoding viral vector, coating with nano-particles and inactivating with β-propiolactone respectively with varying efficacy, dosing schedule and storage condition. Moreover, expanding numbers of researches are necessary to develop new vaccines against Covid-19 with minimal side effects.

Keywords: *Covaxin, Moderna, Novavax, SARS-CoV-2, Sputnik V.*

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Biomarkers as Diagnostic Tools in Early Detection and Treatment of Covid-19

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Abstract: Corona virus, a positive-stranded RNA virus having crown-like appearance, becomes are markable economic burden in global healthcare infrastructure and shows broad spectrum of clinical manifestations such as respiratory compromise and multi-organ failure, estimating approximately 30-60% asymptomatic or mildly symptomatic and about 5% gravely ill. Older age, male sex, and chronic health issues, including diabetes mellitus, cardiovascular disease, immuno-suppression, and obesity are clinical or demographic risk factors for serious illness. Severe COVID-19 infection is correlated with immune pathway genetic abnormalities or auto-antibodies against type I interferon and the host response to the severe acute respiratory syndrome SARS-CoV-2 infection is identified a crucial factor in the pathophysiology ofCOVID-19. Several biomarkers such as C-reactive protein, Serum amyloid-A, Iinterleukin-6, Lactate dehydrogenase are identified to recognize host factors or pathways of COVID-19 infection attributing to excellent sensitivity and specificity having negative and positive predictive value respectively and may be used a potential candidate to monitor treatment efficacy of individual patients. Moreover, implementation of the biomarkers may be achieved improved quality of service and patient outcomes. Furthermore, the expanding numbers of researches are required to find clear evidence regarding the mechanism of biomarkers for the treatment of COVID-19 infection.

Keywords: *Corona virus, C-reactive protein, Iinterleukin-6, Positive predictive value, Serum amyloid-A.*

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Cutaneous Psoriasis: A Chronic Disorder, Impacting Quality Of Life

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Abstract: Psoriasis is an auto-immune disorder, it occurs when skin antigens activate dendritic cells and neutrophils and they release cytokines like tumour necrosis factor- (TNF-α), interleukin 23 (IL-23), and interleukin 12 (IL-12), which begin the inflammatory cascade of psoriasis. It is a long-lasting (chronic) disease with no cure. There are seven types of psoriasis such as Plaque psoriasis which is most common, occurs in scalp, knees, elbow, and lower back. Guttate psoriasis which is most common in children and young adults. Inverse psoriasis mainly found in skin folds around the genitals and buttock, under the breast and armpits. Pustular psoriasis is uncommon and mostly appears on hands in adults. Erythrodermic Psoriasis are very serious and eat appears most of our body. Nail Psoriasis is occurred in nail. The most common symptoms of Psoriasis are patches of skin that are bright red, smooth and shiny but don't have scale and getting worse with sweating and rubbing. Additionally, psoriasis is associated to coronary artery disease, non-alcoholic fatty liver disease, and chronic obstructive pulmonary disease. In addition to having a significantly lower quality of life, people with psoriasis may also struggle with psychological issues like

anxiety, sadness, and suicidal thoughts and actions. Steroid cream or ointments (tropical corticosteroid) are used to treat mild and moderate psoriasis. Still there are having no cure for Psoriasis but experts are working on it from worldwide.

Keyword: *Psoriasis, Plaque psoriasis, Guttate psoriasis, Inverse psoriasis, Pustular psoriasis, Erythrodermicpsoriasis, Nail psoriasis, Psoriatic Arthritis.*

BCDACPT/P-74/2022

Evolution of Smart Pill in Pharmaceuticals and Its Ethical Aspects

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Abstract: Smart Pills are the novel drug device technology that combines traditional drugs with monitoring systems to collect for bearing compliance and physiological data without the need for human intervention. The first digital pill with an embedded sensor has been approved by the US Food and Drug Administration. The patients suffering from severe mental illnesses, this helps in memorising the dose, taken by the patient through, mobile. The establishment of practical and scientific strategies for the use of safe and effective digital medications will improve treatment outcomes, boost compliance, shorten hospital stays, offer mobile clinical monitoring, lower treatment costs, and improve patient safety. Digital medications promote patient compliance and treatment effectiveness in the fields of psycho-education and mental health, including for conditions like schizophrenia, bipolar disorder, attention deficit disorder, and many more. The makers of the digital pills also rely on the treatment of cardiac illnesses, diabetes, hepatitis C, AIDS, cancer, tuberculosis, and the observation of patients' use of opioid medications following surgery, among other situations where acceptance may be hampered by the patient's behaviour. The usage of digital pills has also sparked a lot of ethical questions, despite the fact that they represent a promising invention in the field of digital medicine. Additionally, there is a lack of clarity regarding the empirical data that is now accessible regarding the use of this cutting-edge digital therapy.

Keywords: *Digital pills, psychoeducation, digital medicine, schizophrenia, attention deficit disorder.*

BCDACPT/P-75/2022

Huntington Disease: An Overview and Its Consequences

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Abstract: Huntington disease (HD) is an autosomal dominant, neurodegenerative disorder with a primary etiology of striatal pathology. Which is commonly seen in adulthood. Now a day's7% of HD cases symptoms are shown before 21 years is known as Juvenile-Onset Huntington Disease (JHD). The casual factor is, repetition of pathologically expanded Cytosine, Adenine and Guanine (CAG) in the Huntington gene. If the repetition is more than 40 times then it forms Huntington protein. Clumps of protein, which is commonly known as inclusion bodies, which stain positive for Huntington, are found primarily in the nucleus but also in the cytoplasm and axons in HD neurons. This disease affects brain structure more in juvenile cases than adulthood. Symptoms of Juvenile-Onset Huntington Disease (JHD) include changes in personality, coordination, behaviour, speech, ability to learn. Physical

changes include rigidity, leg stiffness, and clumsiness, slowness of movement, tremors or myoclonus. In comparison with adult HD, seizures and rigidity are common, and chorea is uncommon. Patients with JHD present with a broad range of symptoms and signs that only overlap partially with adult –onset HD. From a survey it was seen that, the median age of onset was 9 years, where 52% were female, the mutant HTT allele was transmitted paternally in 80% of cases, and the median CAG repeat length was 64. The aim of this objective is to compare clinical and pathological features in Juvenile- & Adult –onset Huntington disease. A greater awareness and understanding of the presentation of JHD would improve the diagnosis and treatment of this condition.

Keywords: *Juvenile-Onset Huntington Disease, Huntington protein, Neurodegenerative, Striatal.*

BCDACPT/P-76/2022

Advancements in Taste Masking of Paediatric Liquid Oral Formulations.

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Abstract: Taste masking in liquid oral paediatric dosage form was definitely a challenge to the formulation scientist with limited excipients previously as most of the Active principles are bitter in taste. Acceptance of the formulations by the targeted patients which comes under paediatric category is definitely a concern in terms of attaining successful therapeutic objectives as most of the formulations are rejected by younger patients due to improper taste masking. The current study was carried out to determine the existing methods and subsequent advancement in Taste masking in such formulations. Literature review suggests that taste masking is usually achieved by blend of flavours, sweetening agents, palatability enhancers etc. Still when in clinical practice these formulations are often rejected by the patients due to their bitter and unpleasant taste. Masking of unpleasant taste is therefore a major goal in paediatric liquid oral formulation development thus with advancement in formulation science due to consideration has been given to newer technologies like Crystal engineering approach to bitter taste masking of drug molecules, Complexation with cyclodextrins, use of novel polymers as solubility modifiers and barrier to taste buds. Stable emulsified flavouring systems, high fructose corn syrup, inclusion of specific compounds that competitively inhibit bitter receptors in tongue, rendering the active principle insoluble in the liquid base. Thus with time our thought process is given to effective taste masking of liquid oral paediatric formulations to render them effective and accepted pharmaceutical preparation by the younger patients.

Keywords: *Crystal- engineering, complexation, Novel polymers.*

BCDACPT/P-77/2022

Healthcare Workers with Disabilities Faces Discrimination and Abuse

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Abstract: The present study aims to highlight an underrated problem at workplaces experienced by the Healthcare professionals from patients, co-workers. Any Healthcare professional like, Physicians, Interns, Pharmacists, Nursing Staffs who are suffering from some kind ofdisability are more prone to nuisances at work places ranging from racial, physical abuseand psychological pressures. These aspects have never been studied and focused to that extent, as every disabled Healthcare professional is already under personal psychological stress andsuffering from inferiority complex, when they are subjected to abuses at their workplaces, they are just unable to deliver their professional duties optimally. Thus, we need a better understanding of the above cited problem and due attention must be given to the same by regulatory bodies. After all Healthcare professionals are Human beings and those with disabilities need more sympathetic and rational approach.

Keywords: *Disability, Discrimination, Inferiority, Mistreatment, Abuse.*

BCDACPT/P-78/2022

Antibiotic Resistance: Current Scenario and Prevention

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Abstract: Now-a-days antibiotic resistance is one of the biggest global health concerns. Antibioticresistance occurs when an infection responds poorly to an antibiotic that once could treat itsuccessfully. It's the bacteria that have become resistant to the antibiotic, not the patient.Infection by antibiotic resistance bacteria, are much harder, sometimes impossible to treat. A growing number of infections, such as pneumonia, tuberculosis, gonorrhoea, and salmonellosisare becoming harder to treat as the antibiotics used to treat them become less effective. Thishappens because the bacteria acquire a change in their DNA, that gives them a new protein asa tool to fight the antibiotic. This antibody resistant bacteria can infect humans, animals andspread between them through food and the environment. While the emergence of antibioticresistance is inevitable and the process is greatly accelerated by misuse and over use ofantibiotics. The ability of low doses antibiotics to promote growth of animals and birds wasdiscovered serendipitously in the 1940s (Gustafson and Bowen, 1997). Subsequently, it waswidely exploited and by this time, addition of antibiotics to the animal feed to stimulate growthhas turned into a global practice. Incomplete knowledge and misperceptions about the use ofantibiotic and the subsequent consequences of its misuse must be highlighted to successfullytackle the issue. Health professionals can play a vital role in prevention by educating peopleabout the potential risks of antibiotic use as people are more likely to trust and consider theirtherapeutic advice and medical knowledge.

Keywords: *Antibiotic resistance, Mutations, superbugs, salmonellosis, gonorrhoea.*

BCDACPT/P-79/2022

pH Sensitive Drug Delivery Systems: A Review

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Abstract: Novel formulations approaches are required to deliver the pharmacological payloads to thepathologic tissues, resulting in an improved therapeutic response with minimal

side effectstherefore the development of targeted and personalised treatments are necessary. Since manypathological tissues have an acidic micro-environment, pH-sensitive biomaterials for drugdelivery have great potential for the purpose. These materials could shield therapeutic payloadsfrom metabolic activities and degeneration during in vivo vasculature and demonstrateresponsive release of the therapeutics triggered by acidic pathological tissues with improvedstability of drug delivery in stomach. Numerous techniques, including acidic cleavage linkage,have been used in recent years to fabricate pH-responsive materials for both in vitro and in vivoapplications. This presentation will provide an overview of certain pH-sensitive drug deliverysystems used in medicine, with a particular emphasis on pH-sensitive linkage bonds and pH-sensitive biomaterials.

Keywords: *Acidic cleavage linkage, Acidic micro-environment, pH-sensitive biomaterials, pH-sensitive linkage bonds*

BCDACPT/P-80/2022

Application Of 3-D Printing in Pharmaceutical Industry

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Abstract: In recent years there is a rapid increased demand for customized pharmaceutics and medical services can be observed. Now-a-days 3D printing has become one of the most wide ranging and powerful tool which is used to provide service in technology of precise manufacturing of individually developed dosage forms like tissue engineering and disease modelling. It was first developed by CharlesHaul, in 1984. 3D printing is basically a process of making 3-dimensional solid object from a digital file. It constantly motivates towards new concept in drug design, simplified understanding of materials properties, manufacturing technology and processes with assuring high quality of dosage form. The divergence of physicochemical and biopharmaceutical characteristics of active pharmaceutical ingredients (APIs) has to be considered and studied at each stage of product development. Further more recent years have seen increasing interest in applying 3D technology to the pharmaceutical manufacturing of drug product and development of various Drug delivery systems. On the other hand, this system has a lot of potential but regulatory challenges restricting the wide application of 3D printing technology to pharmaceutical products.

Keywords: *3D printing, physiochemical and biopharmaceutical, API, drug delivery.*

BCDACPT/P-81/2022

Medicinal Plants: Their Use in Anticancer Treatment

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Abstract: Cancer is a disease which severely effects the human population. Cancer is the second leading cause of deathworldwide. There is a constant demand for new therapies to treat and prevent this life-threatening disease.Scientific and research interest is drawing its attention towards naturally-derived compounds as they areconsidered to have less toxic side effects compared to current treatments such as chemotherapy. The PlantKingdom produces naturally occurring secondarymetabolites which are being investigated for their

anticanceractivities leading to the development of new clinical drugs. With the success of these compounds that have beendeveloped into staple drugs for cancer treatment new technologies are emerging to develop the area further.New technologies include nanoparticles for nano-medicines which aim to enhance anticancer activities of plant-derived drugs by controlling the release of the compound and investigating new methods for administration.This review discusses the demand for naturally-derived compounds from medicinal plants and their propertieswhich make them targets for potential anticancer treatments.

Keywords: *Anticancer, Secondary Metabolites, Polyphenols, Cytotoxicity, Epigenetics.*

BCDACPT/P-82/2022

Genomic DNA Isolation from Different Cancer and Normal Cell Lines and To Determine Its Role as A Diagnostic Tool.

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Abstract: DNA analysis can be used in the diagnosis of hereditary diseases, in investigations of instructions needed for an organism to develop, survive and reproduce. One main problem inextraction and detection of DNA at physiological levels is that the amount of DNA to be detected isin the femtomolar or attomolar range, usually lower than the detection limit of general analytical technique. There are two alternatives to solve this problem: to amplify the sample or to amplify the signal. In this study, we isolated Genomic DNA from different cancer and normal cell lines and triedto determine its role as a diagnostic tool. Cisplatin was used as a standard drug in the study. The DNA was extracted from harvested HEK 293, MCF-7, A549 cells by Phenol-chloroform and isoamylalcohol and validated the purity of DNA. The DNA was quantified using UV-Visible Spectroscopy andabsorbance values were recorded. Electrochemical study was performed using cyclic voltammetry to understand the electrochemical behaviour of DNA before and after treatment with Cisplatin. Thisstudy can be an effective strategy for mimicking and detecting dsDNA damage induced by cisplatin invivo. The sensor was then successfully applied to detect DNA damage electrochemically according tothe change of oxidation peak currents for guanine and adenine between the intact and damaged DNA. This method provides a new way of using DNA as diagnostic tool for detection of diseases in early stage.

BCDACPT/P-83/2022

Insulin Abuse: A Brief Review

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Abstract: Insulin being a regulatory hormone for blood sugar levels, it is also a highly abusablesubstance in forensics. Insulin has been a primary or secondary constituent in several deathslike suicide, homicide etc. An insulin instantly alters the blood sugar levels and if leftuntreated might lead to hypovolemic shock followed by death, it is important to understandthe behaviour and treatments aspects of insulin. In this paper we should draw your attention toinsulin abuse. we have discussed hypoglycaemia and death cases related to it, it

can bebasically, of three types- suicidal, homicide, accidental, most of cases hypoglycaemia aremainly accidental cases. The normal insulin level for serum is < 25 MIU/ml and it increasesfrom 18 to 276 MIU/ml then it could be diagnosed hyperinsulinemia. some people also takeinsulin for sports purpose and to gain muscle which is also cause harm to the health andsometimes leads to hyperglycaemia we hope this review may help to gain some knowledgeabout this topic.

Keywords: *Hypoglycemia, Insulin, Hyperinsulinemia, Homicide.*

BCDACPT/P-84/2022

Robotics

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Abstract: Robotics plays a very important role in pharmacy and in various industries. Since, robots wereintroduced in 2010 in pharmacy the UCSF (University of California San Francisco ParnassusCampus) Medical Center has seen fewer pharmacist errors and better patient safety. Since then, more than 150,000 have been installed globally including a large proportion in pharmaceutical industries. Different types of robots have been installed for various purposes for industries. Thereis a vital role for robotics to play in the complicated processes of research and development, production, and packaging, others it is also used for scanning barcodes, proper securities, reporting capabilities, advance workflow systems, managing dates and quantities through computers etc. The Automation systems have given most of the good results throughout many years and evaluations of these machines have a bright future ahead. With a rapidly aging population that urgently requires sophisticated medical devices and newer drugs, robotics systems are increasingly adopted for improved productivity and efficiency to meet this growing demand. Pharmacy Automation provides several benefits to pharmacy owners including increased accuracy and speed, better space savings, better narcotics security, and improved inventory management. In this article, an application of robotics in community pharmacy is discussed which includes discussion of UCSF that is used to help us identify results related to project planning, the implementation of pharmacy automation and robotics system that deliver pharmaceutical care in a safe, effective andcost-efficient manner.

Keywords: *Robotics, Automation system, sophisticated medical.*

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Masks in Covid -19, Really Safe?

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Abstract: In March 2020, New York State encountered its first official case of COVID-19. This novel coronavirus, referred to as SARS-COV-2, originated in Wuhan, China in December 2019. Within a short amount of time, hundreds of thousands of cases were diagnosed around the world, causing the World Health Organization to announce it as an infectious disease pandemic on January 30, 2020, to prevent the spread of COVID-19, hospitals globally were instructed that all employees and visitors must wear a mask at all

times when in the facility. The largest at-risk population is undoubtedly the frontline healthcare workers (HCWs), who are using personal protective equipment (PPE), essentially face masks, to battle against this deadly virus. Using face masks comes with many deleterious effects. Among all the skin types, HCWs with oily skin (64,62.1%) were prone to face resurgence of acne or new-onset acne. The most common sites of eruption of acne were along the cheeks (45.1%) followed by the nose (40.9%). Majority of the population suffered from mild acne. Moderate and severe acne eruption was particularly observed in those wearing N-95 and surgical masks. Furthermore, this study aimed to identify the type of mask generating acne, locate the common sites, assess the severity and establish an association of mask use with the skin type. Chief concern of using amask is reuptake of CO_2 back into the body, is it justified, only time will tell.

Keywords: *acne, facemask, healthcare worker, COVID-19.*

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3D Printing: A New Era in Pharmaceutical World

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Abstract: The Three-Dimensional Printing (3D printing) is a process of creating 3D objects, where materials are deposited in layer on layer using a computer-driven-process based on digitalmodel. From 1990s the 3D printing has become one of the most revolutionary and powerfultools for designing, manufacturing and analysing of novel dosage form in Pharma industries.The 3D printing is a combined course of Computer-Aided-Design (CAD) with RoboticsTechnology, where various kinds of dosage form and medical devices can be prepared withmore accuracy, least effort and highly effectiveness. The application of 3D printing involves Fused Diffusion Modelling (FDM), Stereo Lithography Apparatus (SLA), Selected Leaser Sintering (SLS), Laminated Object Manufacturing (LOM), Continuous Liquid Interface Production (CLIP), and Powder Based (PB). There are several inventions for example, devices like 3D printed working kidney, ear, lower jaw, skull, eye lens etc. or drugs like levetiracetam, 5-FU, combined pill (polypill) for treatment of Hypertension, Diabetes Mellites type 2, Cancer Chemotherapy and many more got great success in the history of drug discovery. Multi-layered tablets prepared by 3D printing become most preferred drugs now-a-days as for the treatment of targeted diseases or disorders for individual person, inorder to get very high activity with very low side effect. In this review I have discussed the history, evolution, function, techniques, applications, advantages of 3D printing in details.

Keywords: *CAD, 3D printed devices, 3D printed drugs, 3D printed shell, Stereolithography.*

BCDACPT/P-87/2022

Global Drug Shortages in Post Pandemic Era

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Abstract: Drug shortage is a global issue which had affected low, middle, and high-income countries during the pandemics and in this post pandemic era the problem is still a persistent problem. Literature survey revealed there might be various causes of shortages due to supply

issues, demand issues, and regulatory issues. Supply issues consist of manufacturing problems, unavailability of raw materials, logistic problems, and business module failures. In general Drug shortage affects all stakeholders from economic, clinical, and humanistic aspects. Post Pandemic though many countries have developed various strategies to overcome the problem, still it is accelerating, affecting the whole world. All types of drugs, such as essential life-saving drugs, oncology medicines, antimicrobial drugs, analgesics, opioids, cardiovascular drugs, radiopharmaceutical, and parenteral products, are liable to the shortage. Among all pharmaceutical dosage forms, sterile injectable products have a higher risk of shortage than other forms. Excessive dependency on China for supply of API's, Intermediates and Excipients mightbe one of the major contributing factors. Though WHO have well documented global mitigation strategies from four levels to overcome drug shortages globally, still self-reliant modules must bethe go-to concept for all the developing countries with educating and training of all healthprofessionals periodically for managing shortages.

Keywords: *Manufacturing problems, Post Pandemic, Essential life-saving drugs.*

BCDACPT/P-88/2022

Connection Between Depression & Chronic Stress: A Review

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Abstract: Depression is a common and serious medical illness that negatively affects how you feel the way you think and how you act. It is a feeling of sadness or a loss of interest in activities you once enjoyed. It can lead to a variety of emotional and physical problems and can decrease your ability to function at work and at home. In other hand, chronic stress can be described as a "perpetual state of overwhelm". While the root causes differ from person to person, trauma, caregiving responsibilities, grief and the pressures of work and home life can contribute to ongoing stress. The link between stressful life events and the origin and development of depression hasbeen widely investigated, providing an increasing body of evidence supporting this association. A selective review of the relevant bibliography was conducted. The significant data were integrated with clinical and preclinical findings, particularly focusing on the effect of the hypothalamo–pituitary–adrenal activity (HPA) on the serotonergic neurotransmission in the central nervous system (CNS). The reviewed data shows that chronic application of stress responses may lead to alterations in the regulation of the HPA system, and the resulting hypercortisolism may be reflected in various psych neuroendocrinological processes, such as the observed in the serotonergic system, which was implicated in the origin and development of depression.

Keywords: *Depression, Serotonergic, Psych neuroendocrinological Processes, Hypercortisolism, Hypothalamo–Pituitary–Adrenal activity, Neurotransmission.*

BCDACPT/P-89/2022

A Review on Buccal Drug Delivery System : An Alternative Approach of Drug Delivery

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Abstract: The delivery of drugs through the buccal mucosa has received a great deal of attention over the last two decades. It is the administration of drug via the buccal mucosa (the lining of the cheek) to the systemic circulation. Buccal formulations are placed in mouth between the upper gums and cheek totreat local and systemic conditions. The drugs bypass first pass metabolism by absorption in jugularvein, so increases bioavailability and rapid onset of action also use in unconscious patients, the acid sensitive drugs administered through this route for prevention of degradation, painless administration. Buccal delivery follows the general principle of drug absorption. Several buccal adhesive delivery devices were developed at the laboratory scale and can be broadly classified into solid, semisolid and liquid buccal adhesive dosage form. The most common formulations are tablets and patches. NSAIDS (Ketoprofen, Nimesulide), calcium channel blockers, beta blockers, anti-fungal etc. drugs used through buccal drug delivery system. The aim at reviewing this alternative drug delivery system extends beyond ways to administer new pharmaceutical therapies. The safety and efficacy of current treatments may be improved if their delivery rates, biodegradation and site-specific targeting can bepredicted, monitored and controlled. Buccal Drug Delivery System can be incorporated forformulations of various dosage forms like tablets, patches, films etc. Various evaluation test conducted for this alternative drug delivery system includes hardness test, weight variation, thickness, assay, disintegration, surface pH, swelling index, dissolution etc.

Keywords: *Buccal mucosa, jugular vein, adhesive delivery devices.*

BCDACPT/P-90/2022

A Review of Phytochemical Analysis and Pharmacological Activity of Gyrocarpus Asiaticus Willdand *Lactuca runcinata* DC

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Abstract: The present study is aimed at reviewing the phytochemistry and pharmacological activities of Gyro carpus asiaticus Wild and Lactucaruncinata DC. The results of the current study are based on literature research on phytochemistry and pharmacological properties of Gyrocarpus asiaticus &Lactucaruncinata. These plants are valuable for antibacterial, anthelmintic, cardiotonic, antioxidant, cytotoxic (anti-cancer), anti-diabetic, hypolipidemic and hepatoprotective effect. Toxicity study of the plant extracts were regarded as safe for animals. Both the plants were revealed the various phytoconstituents such as alkaloids, cardiacglycosides, flavonoids, phenols, saponins, steroids, tannins and terpenoids which are may be responsible for different pharmacological activities. This literature review report of the plants would provide a basis for phytochemistry and pharmacological screening & are safe for the development of medicines and it will be more useful for researcher for further research work.

Keywords: *Gyrocarpus asiaticus, Lactucaruncinata, Phytochemistry, Pharmacology.*

BCDACPT/P-91/2022

A Review on Green Synthesis of Silver Nanoparticles Using Plant Extract and Their Biocidal Properties

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Abstract: The use of silver and silver salt is very old method in human civilization, but the use of silver nanoparticles has only recently been recognized. Nanoparticles compared to bulk materials exhibit improved characteristics due to their size, distribution, and morphology. Among the other metal nanoparticles silver nanoparticles can be used as antibacterial, antifungal, antioxidants. Silver nanoparticles using various plant extract can prevent the growth of bacteria like *Salmonella typhii*, *Pseudomonas aeurginose*, *Staphylococcus aureus* etc. The process is eco-friendly and reduces the hazardous chemicals which may produce during chemical synthesis and this can be overcome by using any plant extract with silver by using green synthesis. The characterization can be determined by using UV-Visible Spectrophotometer, Scanning Electron Microscope (SEM), Transmission electron microscope (TEM). This review provides a useful and comprehensive idea about the biosynthesis of Silver Nanoparticles using plant extract and study of their physical chemical properties and some of their medicinal uses.

Keywords: *Green synthesis, Silver Nanoparticles, Antimicrobial Activity, Anti-Oxidant Activity.*

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Natural Super Disintegrants in Mouth Dissolving Tablets

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Abstract: Mouth dissolving tablets (MDTs) have received ever-increasing demand during the last decade, and the field has become a rapidly growing area in the pharmaceutical industry. MDTs are of novel type tablets that disintegrate/dissolve/ disperse in saliva within few seconds in the absence of additional water for easy administration of active pharmaceutical ingredients. According to European Pharmacopoeia, MDTs should disperse/disintegrate in less than three minutes. MDTs are meant for administration to the patients who cannot swallow, such as the elderly, stroke victims, bed ridden patients, patients affected by renal failure, and patients who refuse to swallow, such as paediatric, geriatric, and psychiatric patients and for travellers and busy people who do not always have access to water. By the use of MDTs, rapid drug therapy intervention can be achieved. Super disintegrants are substances which are more effective at lower concentrations with greater disintegrating efficiency and mechanical strength. Mostly they are added to the formulations to break up the tablet into small particles that can rapidly dissolve. On contact with water, they swell, hydrate, change volume or form and produce a disruptive change in the tablet. Many synthetic substances like sodium starch glycolate, Ac-di-Sol, crosspovidone and Kyron T314 have been used as a disintegrating agent in the tablet formulation. Now-a-days, natural superdisintegrants (gums, mucilage, and other substances of natural origin) are being preferred over synthetic ones since they are chemically inert, nontoxic, less expensive,

biodegradable, and widely available. The purpose of this review is to highlight some natural super disintegrants currently being used in fast dissolving technology.

Keywords: *Mouth dissolving tablets, Super disintegrants, rapid drug therapy.*

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A Review on Evaluation of Various Pharmacological Activity of *Nyctanthes arbour-tristis*: A Medicinal Plant

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Abstract: *Nyctanthes arbor-tristis* (Oleaceae) is a mythological plant which is having high medicinal values in Ayurveda. Various parts of the plant like seeds, leaves, flowers, bark and fruits have been reported for their significant phytochemicals. Phytochemicals like flavanol glycoside, oleanic acid, essential oils, tannic acid, carotene, lupeol, glucose, benzoic acid have been identified for significant hepatoprotective, anthelmintic, antiviral, antifungal, antipyretic, antihistaminic, antimalarial, antibacterial, anti-inflammatory, antioxidant activities. The present review is to evaluate the ethnopharmacological activity focusing on information on the chemical constituents, pharmacological actions and toxicology in order to reveal the therapeutic activity and highlight the need for research and developement.

Keywords: *Ayurveda, phytochemicals, ethnopharmacological activity*

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A Review on Pharmaceutical Co-Crystallization

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Abstract: Solubility of an active pharmaceutical ingredient (API) is a key characteristic which influence the drug dissolution as well as bioavailability during the development of drug (API) into a suitable dosage form. Most of the APIs which have lower aqueous solubility status are going through the development process in today's time belong to BCS class Ⅱ and class Ⅳ of Biopharmaceutical Classification System. The drugs from this two Biopharmaceutical Classification System classes one common thing is that both have lower aqueous solubility. Due to the lower aqueous solubility drugs belonging to these classes exhibit poor dissolution rate as well as poor bioavailability which affect the drug performance. Therefore, there is a great interest among the formulation chemist to develop reliable, efficient, cost effective and scalable methods to increase the aqueous solubility and dissolution of BCS class Ⅱ and class Ⅳ drugs. Co-crystallization is a unique technique by the help of which physicochemical properties (solubility, dissolution, melting point etc.) can be modified without changing the intrinsic properties of API. Crystal engineering is a technique which is used to modify the crystal packing of a solid, which involve the modification of intermolecular interactions that help to regulate breaking and creation of non-covalent prolonged release formulations &hence cocrystal formation appears to be an advantageousalternative for drug discovery.

Keywords: *Co-crystallization, Bioavailability, Biopharmaceutical Classification, System, Active pharmaceutical ingredient (API).*

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Review Article: Protein and Peptide Drug Delivery System

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Abstract: Protein and Peptide drug delivery system is one of the Novel drug Delivery Systems. Protein and peptides are the most abundant components of biological cells. They exist functional as enzymes, hormones, structural element, immunoglobulin etc. The twenty different naturally occurring amino acids bound with each other by peptide bonds and build polymers referred as peptides and proteins. Although the distinction between peptides and proteins are peptide contains less than 20 amino acids, having a molecular weight less than 5000, while a protein possesses 50 or more amino acids and its molecular weight lies above this value. Most of the pharmaceutical proteins and peptides are absorbed through IM, IV and Subcutaneous route of Absorption, but the oral route is more convenient for absorption of protein as compared to other. Various problems associated with administration of protein and peptide drugs are needed to overcome by different pharmaceutical approaches. Several approaches available for maximizing pharmacokinetics and pharmacodynamics properties are chemical modification, formulation vehicles, mucoadhesive polymeric system, use of enzyme inhibitors, absorption enhancers, penetration enhancers etc. The present focuses on description Structure, classification of Protein, Need, Advantages, Function of protein and peptide drug delivery system. Route of Absorption, Pharmaceutical approaches, Incorporation of DDS, Stability aspect, Applications, Recent Advances and Marketed formulations of Protein and Peptide drug delivery system.

Keywords: *Protein, Peptide, Parenteral, Non-Parenteral, Novel drug Delivery System.*

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Bioprinting: An Advanced Tool for Organ Fabrication

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Abstract: 3D Bioprinting is a form of addictive manufacturing that uses cells and biomaterials instead oftraditional metals and plastics to create 3D constructs, that are functional 3D tissues. It is aninnovative auspicious strategy in medical and pharmaceutical fields. 3D bioprinting is firstinvented by Charles Hall, and he is also famous for the invention of stereolithography, which isalso known as the first commercial rapid prototyping technology. The ability of producing regenerative tissues and organs has made this technology a pioneer to the creative of artificialmulticellular tissues/organs. It is computer aided design (CAD) data for creation of three-dimensional and physical objects directly. No other technology enables the level geometric complexity in engineering tissues that 3D bioprinting enables. Special polymers or thermal plastics such as collagen, gelatin, alginate, poly-vinyl alcohols (PVA), poly-ethylene glycol (PEG), etc. are used for this method. Filaments of the thermal plastics can be deposited by themelt extrusion method at fused deposition modelling technique (FDM) and polymer-based layerby layer structure may be created by computer controlled moving laser. Rather than this, byconventional inject printing process can also be held to inject in bio printing method usingdesktop inject printers. This is a

revolutionary invention to study in vivo models without harmingthe original organs or species. That is why this technology has the upper hand to completelychange the way we treat diseases byreplacing animal testing and ending the organ transplantwaiting list.

Keywords: *3D Bioprinting, stereolithography, prototyping technology, computer aided design, thermal plastics, desktop inject printers.*

BCDACPT/P-97/2022

Review Articles of Incretins: Their Role in Type 2 Diabetes Mellitus

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Abstract: Diabetes mellitus is a metabolic disorder characterized by hyperglycaemia due to an absolute deficiency of insulin production or action. Diabetes mellitus associated with organ damage, dysfunction and failure including the retina, kidney, nervous system and heart. The International Diabetes Federation estimated the amount of diabetes mellitus to be 366,000 in 2011 and it rise to 552,000 by 2030. Type 1 diabetes is genetic disorder that often shows up early in life and Type 2 is largely diet related and develops over time. Type 1 diabetes each attacking the immune system and destroying the insulin producing cells in the pancreas. Incretins increases stimulation of insulin secretion elicited by oral as compared with intravenous administration of glucose under similar plasma glucose levels. Drugs in the incretin mimetic class include exenatide, liraglutide, sitagliptin, saxagliptin which used along with diet and exercise to lower blood sugar in adults with Type 2 diabetes. Incretins are gut hormones that are secreted from entero endocrine cells into the blood within minutes after eating to regulate insulin secretion in response to a meal. Incretin mimetic act like incretin hormones and are only used to treat type 2 diabetes mellitus. They can bind to GLP-1 receptors to stimulate insulin release based on the concentration of the glucose supplied, suppress, appetite, inhibit glucagon secretion and slow down the rate of gastric emptying. Their overall effect normalizes blood glucose concentration. Another dimension to the use of incretins in diabetes management is the development of GLP-2 receptor agonists with a view to improving insulin secretion by maintaining the insulinotropic activity GLP-1 in type 2 diabetes mellitus. This study aimed at review on incretins actions in type 2 diabetes mellitus.

Keywords: *Incretins, Diabetes mellitus, GLP receptor, Incretins mimicking.*

BCDACPT/P-98/2022

A Review on Smart Polymers

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Abstract: Pharmaceutical and biological therapeutics are often limited by short half-lives, poor bioavailability, and physical and chemical instability. Stimuli responsive polymers offer a drug delivery platform that can be utilized to deliver drugs at a controlled rate and in a stable and biologically active form.Smart polymers have enormous potential in various applications. In particular, smartpolymeric drug delivery systems have been explored as "intelligent" delivery systems able torelease, at the appropriate time and site of action,

entrapped drugs in response to specific physiological triggers. These polymers exhibit a non-linear response to a small stimulus leading to a macroscopic alteration in their structure/properties. The responses vary widely from swelling/contraction to disintegration. Various stimuli are utilized to attain the controlled and site-specific delivery of drug. Inherent limitations of this drug delivery system are slow response times. While there are many exciting challenges facing this field, there are a number of opportunities for the development of smart polymeric drug delivery systems. Smart polymeric drug delivery systems have a very wide range of applications and are likely to have an exciting future.

Keywords: *Smart Polymers, Stimuli Responsive Polymers, Smart Polymeric Drug.*

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Glycogen Synthase Kinase 3 Inhibitors as Potential Target to Treat Diabetes Mellitus

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Abstract: Type 2 diabetes mellitus is a chronic metabolic disorder in which prevalence has been increasing steadily all over the world. Diabetes mellitus is characterized by increase of blood sugar leveldue to either deficiency in insulin secretion or in appropriate action of insulin. There is presently no cure for this ailment. However, therapy options include dietary changes, the management of obesity, the use of oral hypoglycemic medications, and the use of insulin sensitizers such the biguanide metformin. This crisis led to the introduction of new medications. Presently, Glycogensynthase kinase-3 (GSK-3) has gained considerable attention from biomedical scientists to treatdiabetes. Phosphorylation of GSK-3 permits a number of cellular activities like regulation of cell signaling, cellular metabolism, cell proliferation and cellular transport. Inhibiting GSK-3 activityby pharmacological intervention has become an important strategy for the management of T2DM. This review focuses on the schematic representation of fundamental GSK-3 enzymology and encompasses the GSK-3 inhibitors as a future therapeutic lead target for the management of T2DM that may significantly regulate insulin sensitivity to insulin receptor, glycogen synthesisand glucose metabolism.

Keywords: *Type 2 diabetes mellitus, glycogen synthase kinase-3, insulin sensitivity, glucose metabolism, modern targets.*

BCDACPT/P-100/2022

Effective Use of Nanotechnology in The Management of Covid-19

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Abstract: Since 2019, COVID-19, which is brought on by SARS-CoV-2 infection, has spread widely. The creation of appropriate and efficient vaccinations and medicines is the greatest way to combat this epidemic. The rapid creation of diagnostic tools, vaccines, and antiviral treatments for this unique virus is made possible by the use of nanotechnology, which has been at the frontline of ongoing research (SARS-CoV-2). In this poster, we provide the nanotechnology's application to the detection of virus, including approaches

based on nanoparticles, such rapid antigen test, and method depend on nanopores, like sequencing and sensing. Nanotechnology has also been applied in the development of anti-SARS & COVID-19 vaccines. In addition to helping to control the COVID-19 pandemic, nanotechnology also offers platforms for the early detection, development of vaccinations, and production of antiviral medications and vaccines for potential future viral outbreaks.

Keywords: *COVID-19, Nanotechnology, Pandemic, Vaccines*

BCDACPT/P-101/2022

Modeling of Monkeypox Envelop Protein F13 : Combined Artificial Inteligenceand Molecular Dynamics Approach

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Abstract: Monkeypox virus (MPVX) pose significant threat to humanity still in 21st century. Due tolack of significant medication against this infection, creates an emerging necessity to design and develop effective small molecule-based therapeutics. Small molecules based therapeutics has major advantages over Vaccine and biologicals in terms of production, handling, storage etc. Out-rightly it was found, no ligand activity information yet not available against this virus, directed researchers to adopt structure-based design (SBDD) approach. A well-defined and good quality protein structure is the prime requirement of SBDD. Only the whole genome sequence of MPVX available till date. The crystal structure of MPVX protein yet not discovered. In the present study the crucial nucleotide sequences responsible for viral replication as well as structural integration ware extracted. Using BlastX technology all the nucleotide sequence was encoded to protein sequence. The resulting protein sequences were subjected for Artificial Intelligence (AI) based tool Alpha-fold to predict 3D protein structure. The generated 3D protein structure further studied by extensive atomistic molecular dynamics simulation in order to establish the validity of predicted structure. Rg-RMSD guided low energy minima, protein pocket volume and Ramachandran plots, etc strongly advocates the reliability and validity of modeled structure. This information can be utilized for identification of potential hits against MPVX.

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A Review on Different Medicinal Plants having Hepatoprotective Activity

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Abstract: Liver is the most vital organ of our body and plays important role in carbohydrate, lipid, protein metabolism and as well as drug's metabolism. Liver also performs excretion anddetoxification. It is site of decomposition of erythrocytes. Hepatotoxic agents are those agentswhich damage the liver cells. About 70-80% of the world population depends on traditionalmedicine which are based on plants/materials source. Over dose of paracetamol, carbontetrachloride [CCl4] and excessive alcohol produce hepatotoxicity. Many medicinal plantsplay as hepatoprotective agents in human health care. There are some plants like Glycyrrhizaglabra, Picrorrhizakurroo, Andragrophispaniculata, Silibum marianum,

Trichopuszeylanicus having hepatoprotective effect. Total 7,500 plants are used in local health traditionsmostly rural villagers of India. Out of these 4,000 plants little known to mainstream populations. Development of plants with standards of efficacy, safety can revitalise treatmentof liver disease and hepatoprotective activity.

Keywords: *Erythrocytes, Hepatotoxic agents, Hepatoprotective activity.*

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Locomotor Activity of Methanolic Extract of *Erigeron bonariensison* Zebra Fish Model

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Abstract: Erigeron bonariensis commonly known as Gulava has been used for thousands of years in the ayurveda for its various chemical constituent. This study was conducted to evaluate the locomotor activity of Erigeron bonariensis on zebrafish models as the locomotor behavior of zebrafish has been widely used to study neuro-behavior. The plant was collected and authenticated by botanical survey of India, Kolkata the aerial parts of E.bonariensis were extracted using of methanol by maceration method and Phytochemical tests were performed as per standard procedure. Then fishes were divided into 4 Groups of 6 animals each (n=6). Group 1-served as control, Group 2, Group 3 and Group 4 - were treated with test substance at three dose (1mg/ml, 2mg/ml, 4mg/ml) levels. Then we observed locomotor activity including total distance travelled, speed to evaluate the impact of *E.bonariensis* on the adult Zebrafish The study showed the presence of glycosides, flavonoids, amino acid, tannins and absence of alkaloids, carbohydrates and saponin. The zebrafish was treated with methanolic extract of *E.bonariensis* which showed increase in locomotor activity. The extract did not show any kind of toxic effect during and after the observe at ion period. Results in this study showed that CNS stimulating activity was found in E.bonariensis.

Keywords: *Engeronbonariensis, Locomotoractivity, CNSdepression, CNSstimulator, Zebrafish.*

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Nanocarriers for Site Specific Drug Delivery to Cancer Patients

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Abstract: Nanotechnology, in recent times evolved in such a manner for target site specific delivery forseveral diseases. One of such utilization is seen by the use of nanocarriers in patients with cancerous cells. Contribution from advancement in Protein engineering & material science tonovel targeted approaches in nanoscale may bring new aspirations to the patients with cancer. Various nanocarriers like polymeric nanoparticles, liposomes, polymeric micelles, SLN, quantum dots, etc have been designed & developed for clinical use. However, few clinically approved nanocarriers were able to act as a carrier for drugs & targeting specific carcinogenic cells. In this poster, we are trying to convey different bold attempts oriented for target specific drug incorporation to carcinogenic patients &to ensure these applications are boughtto limelight to have a better future prospect.

Keywords: *Nanocarriers, Cancer, Drug Delivery, Antibody.*

BCDACPT/P-105/2022

A Review on Scientific Way to Deal with Treating Tobacco Addiction

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Abstract: In this review paper we acquire data about tobacco and their synthetic constituents, sorts of configurationally characters, fundamental environment for creation and trial of partition fromtobacco leaves. Nicotine is content of tobacco. Alkaloid nicotine, nicotianin, nicotinine, nicotine is the significant constituent. It is having earthy coloured tone, unpleasant taste. It isa developed in tropical region. It requires 210 - 310°C temperature for assurance a watery concentrate of tobacco test, pre react with cushioned arrangement of pH, responding this indiscrete analyser with aniline and cyanogen bromide estimating power of yellow shading andcontrasting and standard example. It is utilized as bidis, cigarettes, sticks. It's dissolving point79°C. Nicotine is dull, sharp yellowish fluid having corrosive consuming taste containsnitrogen. It is lessening nervousness, increment pulse, stock volume, and O_2 utilization rate. Analysed by development of nicotinine level in spit, blood and urine. Nicotine substitutiontreatment is a method of admission without smoke. The wellbeing damages of combusted tobacco use are unquestionable. With market and administrative tensions to diminish the damages of nicotine conveyance by burning, the tobacco item scene has expanded to incorporate smokeless, warmed, and electronic nicotine vaping items. Results of tobacco ignition are the primary driver of smoking-incited sickness, and nicotine dependence supports tobacco use.

Keywords: *Tobacco, Nicotine, smoke, injurious, Health.*

BCDACPT/P-106/2022

A Review on *Coffea arabica* : Natural Medication on Worldwide Obesity Problem

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Abstract: Coffee is perhaps of the most established crude materials having different bioactive substances. The reason for this paper is to show the viability and significance of green coffee extricate in weight reduction supplement. This paper additionally shows the cancer prevention agent action of Arabica and Robusta green coffee beans flavors and readiness of beans. Additionally shows the substance structure of the two types of coffee. Corpulence is a worldwide medical problem they may causes numerous medical issues like cardiovascular sickness and diabetes mellitus. Coffee is a medium-sized tree of the Rubiaceae family, satisfying 25 years, and develops to a level of 6-15 m. Coffee is one of the monstrous tropical harvests in emerging nations and generally understudied in subjects of yield nourishment and organization. As of late, center around plant research has expanded all around the world and an enormous group of proof has gathered to show the massive capability of restorative plants utilized in different customary frameworks. More than 13,000 plants have been concentrated on as of late.

Keywords: *Weight Management, Coffea arabica, Cardiovascular Diseases, Antioxidant.*

BCDACPT/P-107/2022

A Review on Seclusion of Mucilage from Herbal Plants and Its Assessment as A Drug Excipients

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Abstract: In current situation drug measurements structures contain numerous added substances other than the dynamic fixings to help fabricating and to get the ideal impact to the drug dynamic ingredients Plant Adhesives are chemically significant polysaccharide with extensive varietyof uses like thickening, restricting, breaking down, suspending, emulsifying, balancing outand gelling specialists. Normally available mucilage is liked to manufactured materialsbecause of their non harmfulness, minimal expense, emollient and non-aggravating nature. The engineered polymers have specific inconveniences like significant expense,poisonousness, natural contamination during combination, non-inexhaustible sources,aftereffects, less tolerant consistence, and so on adhesives are strong possibility to be utilizedin different drug plans as an expected contender for novel medication conveyance framework (NDDS). In this audit, we portray the advancements in regular gums, adhesives and Gelatinsfor use in the drug sciences.As of late, plant determined polymers have enormous interestbecause of their different drug applications like diluent, cover, disintegrant in tablets,thickeners in oral fluids, defensive colloids in suspensions, gelling specialists in gels andbases in suppository. they are additionally utilized in beauty care products, Materials, paintsand paper-production.

Keywords: *Herbal drug, Mucilage, NDDS, Polymers, Gelling agent, Excipients.*

BCDACPT/P-108/2022

A Review on Restorative Advantages of Spirulina: A Microalgae

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Abstract: It is known as the superfood, *Spirulina platensis*, a blue green growth, has hung out in the normal world as a wellspring of sustenance for person for many times inferable from its high satisfied of protein, carbs, nutrients and minerals. Moreover, it's #39 additionally known to hold a few pharmacological impacts of which one of the most unmistakable is its compelling against irritation and fever. *Spirulina spp*. is having a place with the group of Oscillatoriaceae, which having different normal effort. *Spirulina platensis* (SP) is wealthy in bioactive composites with various restorative advantages, cyanobacterium wealthy in proteins, polyunsaturated amino acids, and bioactive composites, comparative as C-phycocyanin, which has mitigating and cell reinforcement action and conceivable lipid and glucose digestion impacts. *Spirulina platensis* (SP) is a filamentous cyanobacterium microalga with powerful helpful phytocell reinforcement, calming causes decrease in prostaglandin and hostile to malignant properties. The mass development of Spirulina is accomplished both in new water and waste water. Spirulina filled in clean waters and under stringently controlled conditions could beutilized for human sustenance. The current review meant to test pharmacological molding of *Spirulina platensis*.

Keywords: *Mitigation, Anticancer, C- Phycocyanin, Cyanobacterium, Spirulina plantesis, Algae.*

BCDACPT/P-109/2022

The Pharmacological Activity of *Hygrophila auriculata* – The Magical Plant

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Abstract: Many traditional medicines are obtained from different medicinal plants, now days medicinal plants are very popular than synthetic drugs due to their easy availability and fewer side effects. As the world is suffering from the novel corona virus pandemic, it is important to boost up the immunity and antibiotics power of the human body to servive during this situation. Many herbal plants play a major role to improve immunity and antibiotics power in human body. Hygrophila auriculata is one of the medicinal plants which are being used from ancient times to till date for boosting human immunity and antibiotics power, treating different health disorders. This article aims to review the pharmacological activity of Hygrophila auriculata based on an extensive survey. It is mainly found in India, Bangladesh, Brazil, Indonesia, Philipines, Japan, Cuba etc. The review reveals that wide range of phytochemical constituents including phytosterols, tannins, carbohydrates, flavonoids,terpenoids,sterols. Phalnikar et al, analyzed the oil from the seeds and reported the presence of uronic, palmitic, stearic, oleic, and linoleic acids.Apigenin-7-O-glucuronide and apigenin-7-oglucoside were isolated from the flowers and lupeol, betulin, and stigmasterol were isolated from the plant. Alkaloids, steroids, tannins, proteins,flavonoids, carbohydrates, fats, and oils were isolated from the roots,the leaves show the presence of alkaloids, carbohydrates, proteins,steroids, glycosides, flavonoids, tannins, phenolic compounds, fats, and oils.The mejor pharmacological activities showed by these plants are antifungal activity, antibacterial activity, antimicrobial activity, anticancer, anti-nociceptive, antitumor, antioxidant, Hepatoprotective, hypoglycemic, haematinic, diuretic, anti-inflammatory, antipyretic, Androgenic activities, it can be concluded that '*Hygrophila auriculata*' may be claimed as a natural source of many pharmacologically active ingredients and may be useful for the development of herbal medicines.

Key words: Hygrophila auriculata, Phytochemical evolution, Diuretic, Anti-cancer.

BCDACPT/P-110/2022

A Systematic Review on New Strategies on Peptide-Based Drug Delivery Systems

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Abstract: Peptide-based drug delivery systems have many advantages when compared to synthetic systems in that they have better biocompatibility, biochemical and biophysical properties, lack of toxicity, controlled molecular weight via solid phase synthesis and purification. Lysosomes, solid lipid nanoparticles, dendrimers, polymeric micelles can be applied by intravenous administration, however they are of artificial nature and thus may induce side effects and possess lack of ability to penetrate the blood-brain barrier. An analysis of nontoxic drug delivery

systems and an establishment of prospective trends in the development of drug delivery systems were needed. This review paper summarizes data, mainly from the past 5 years, devoted to the use of peptide-based carriers for delivery of various toxic drugs, mostly anticancer or drugs with limiting bioavailability. Peptide-based drug delivery platforms are utilized as peptide-drug conjugates, injectable biodegradable particles and depots for delivering small molecule pharmaceutical substances (500 Da) and therapeutic proteins. Controlled drug delivery systems that can effectively deliver anticancer and peptide-based drugs leading to accelerated recovery without significant side effects are discussed. Moreover, cell penetrating peptides and their molecular mechanisms as targeting peptides, as well as stimuli responsive (enzyme-responsive and pH-responsive) peptides and peptide-based self-assembly scaffolds are also reviewed.

Keywords: *Targeted delivery; drug carriers; drug delivery system; peptide-based; cell .*

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AN OVERVIEW: VITAMIN A DEFICIENCY

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Abstract: Vitamins are an important part of the diet. It is divided into two types: Fat-soluble vitamins and Water-soluble vitamins. Vitamin A is a fat-soluble vitamin that plays a vital role in many bodily functions. It is mainly essential for healthy or proper vision, metabolism, it helps the immune system to protect against infections and cell development. There are two forms of Vitamin A: Preformed vitamin A and Provitamin A carotenoids. Vitamin A deficiency occurs when the body lacks in sufficient amount of Vitamin A which it needs to function properly. It is divided into two parts: Extra ocular and Ocular. In developing countries around the world, many people don't get enough vitamin A for that infants, children and people who are pregnant or breastfeeding are the most at risk. Signs and Symptoms of Vitamin A deficiency include: Dryness of skin, eyes & lips, Night Blindness (Nyctalopia), Infertility and Trouble conceiving, Delayed growth, Throat & Chest infections, Poor wound healing, Acne & Breakouts and many more. Treatment consists of diet modifications which may include Vitamin A supplements and diet changes. The best way to prevent Vitamin A deficiency is to eat a healthy diet that includes foods that contain Vitamin A which can be found naturally in plant sources like green, orange and yellow vegetables and also from animal sources. All sectors of society should support the virtual elimination of VAD. Strategies should include promoting breast-feeding, dietary diversification, vitamin A supplementation and food fortification.

Keywords: *Fat-soluble, Carotenoids, Nyctalopia.*

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A Review of Acyclovir-Loaded Chitosan-Sodium Carboxymethyl Cellulose IPN Microspheres

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Abstract: *Introduction*: Interpenetrating network (IPN) hydrogel is composed of two polymers, wherein one polymer is cross-linked/synthesized in the immediate presence of another. A number of reports have been published in theliterature including the combination of natural-synthetic polymer, dual polysaccharides and synthetic polymers. However, the synthesis of IPN using a blend of natural and semi-synthetic polymer is limited in the literature. Nowadays, natural polymers have gained appreciation in drug delivery application

due to their biodegradableand non-toxic properties. This paper describes the potential of an IPN system of natural polymer chitosan andsemi-synthetic polymer carboxymethyl cellulose in controlling the of an anti-viral drug acyclovir. *Methods*: The microparticles were prepared by emulsion solvent evaporation method. The particle size and drug entrapment efficiency were evaluated. The morphology of the particles was examined by optical microscopy.The drug release study carried out using USP type-II dissolution test apparatus. Results: The particle size of microspheres ranged between 205 and 264µm. The drug entrapment efficiency was found tobe 42.39% to 67.78% depending upon the polymer composition. A burst release was observed within half anhour of the dissolution study; however, the remaining amount of drug was released in phosphate buffer (pH6.8) over 6 hour. *Conclusion*: This study revealed that a combination of natural polymer with semi-synthetic polymer could be used for thepreparation of sustained release multi-unit drug carriers. This would in turn reduce the dosing frequency, there by alleviating the dose-related gastric side effects of the drug.

Keywords: *Interpenetrating network, Microspheres, Antiviral, Dosing frequency, Acyclovir.*

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Advancements in Management of Tourette Syndrome

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Abstract: Tourette syndrome (TS) is a heritable neuropsychiatric disorder commonly complicated byobsessions and compulsions, but defined by frequent unwanted movements (motor tics) andvocalizations (phonic tics) that develop in childhood or adolescence. The peak age of onset is5 to 7 years and mostly onset before 18 years. Males are more prone to this syndrome thanfemales. This syndrome is often associated with psychiatriccomorbidities, mainly obsessive-compulsive disorder and attention-deficit or hyperactivity disorder. Tourette's syndrome canmimic many hyperkinetic disorders which makes the diagnosis of it very challenging in somecases. Etiologically Tourette syndrome is considered as related to basal ganglia dysfunction.It can be treated behaviourally, pharmacologically, or surgically, and usually dictated by themost debilitated symptoms. The first line of pharmacologic therapy is alpha2-adrenergicagonists, but for multiple and complex tics dopamine-receptor-blocking drugs are required.These drugs have potential side effects including acute dystonic reactions and tardivedyskinesia, sedation, weight gain. Now there is a definite course of Tourette research whichincludes more large-scale collaborative studies. Substantial Advancement in imagingtechnology is also likely to enhance understanding of TS. Treatment of TS is becoming morestandardized with the recent American Academy of Neurology and forthcoming ESSTSguidelines. Behavioural therapy interventions are becoming more widely accepted withalternative approaches like internet-delivered and group therapy. Furthermore, newmedications are still needed and likely will lead to improved treatments. Emphasis is givennow to gene therapy for the same.

Keywords: *Neuropsychiatric Disorder, Tardive Dyskinesia, Psychiatric Comorbidities, Acute DystonicReactions.*

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A Concise and Systematic Review on New Strategies on Naso-Pulmonary Drug Delivery System

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Abstract: Naso-pulmonary drug delivery is a convenient, reliable and promising method for the systemic administration of drugs as there are limitations associated with the conventional treatment of various chronic diseases and CNS diseases (i.e., Parkinson's disease, Alzheimer's disease). In the present-day Pulmonary route of drug delivery is having much importance inresearch field as it targets the drug delivery directly to lung both for local and systemic treatment. Over the last few decades, the systemic absorption of a broad range of therapeuticsafter pulmonary application has been demonstrated in animals as well as in humans. This review was prepared with an aim to discuss the technical, physiological, and efficacy aspectsof the novel pulmonary route of drug targeting. The review also focuses on the mechanismsof pulmonary drug administration along with compatibility of the excipients employed, devices used, and techniques of particulate dosage production. This review was prepared based on the method of extensive literature survey on the topics covering all the aspects discussed in the present subject. Hence, the better understanding of complexes and challenges facing the development of pulmonary drug delivery system offer an opportunity to the pharmaceutical scientist in minimizing the clinical and technical gaps.

Keywords: *Metered Dose Inhalers, Pulmonary Drug Administration, Targeted Drug Delivery.*

BCDACPT/P-115/2022

To Rise Consciousness About the BAN of Most Popular Drug Ranitidine - A Review

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Abstract: Ranitidine is a very popular drug. It is a histamine-2 blocker. It decreas the amount of acid created by the stomach. The brand names of this popular drug are Zintac, Rantac etc. In some previous years FDA have noticed that zintac is contaminated with NDMA which known to cause for cancer of stomach, kidney, thyroid. The FDA is advising patients who take ranitidine to stop consuming this drug, and consult with their doctor about alternative option for treatment. If any patient takes that drug too long then some of long-term side effect will be shown like blood system disorder, reversible cases of anaemia, leukopenia etc, as well more serious causes like agranulocytosis, pancy to penia. Agency has determined that the impurity in some ranitidine products increases over time and when it stored in long time. The ranitidine is banned in many countries including India. Many ranitidine products will be recalled by many pharmaceutical companies in June 2021. FDA is advising patients to stop consuming ranitidine. Many counties are banned this drug.Ranitidine is a very harmful drug

and need an action for stop selling this drug. This review aims to raise awareness to stop the use of ranitidine drug because it is very unsafe and itincrease the chance of cancer.

Keywords: *Ranitidine, NDMA , Banned.*

BCDACPT/P-116/2022

Medical Preparedness and Response Aspect: Role of Pharmacist in Disaster Management

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Abstract: Emergency and disaster pharmacy serves to ensure the best feasible pharmaceutical treatment for the peoples during incidents and disasters, as well as in other anomalous situations. Emergency and disaster pharmacy plays a major role in medical care, with all the expertise of pharmacists. All over the world, pharmacists experienced in disasters such as earthquakes, different types of accidents like train accidents, tsunamis, or other natural calamities, where hospitals are suddenly faced with huge numbers of patients. Pharmacists of the hospitals have to be prepared also for the treatment of patients in nuclear, biological or chemical hazards (NBC) emergencies. Patients who suffered either severe injuries or harm from NBC emergencies for those the preparedness for various emergencies justify several concepts and specific ranges of medicinal products to care.

BCDACPT/P-117/2022

Nano-Emulsion Based Formulations : In Pharmaceuticals, Cosmeceuticals, and Nutraceuticals

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Abstract: Nano emulsion are very fine oil in water dispersion and thermodynamically stable colloidal dispersions composed of two immiscible liquid, oil and water that mixed together usingemulsifying agent (surfactant and cosurfactant). Nano emulsions have found wide spreadapplication as drug delivery vehicles due to their distinguished characteristics. Theformulation consisting of oil, surfactant, co-surfactant and aqueous phase, usually with adroplet diameter within the range of 10-100 nm.Nanoemulsion have attracted the attention ofscientists due to their benefits such as optical clarity, ease of preparation, thermodynamicstability, high surface area, and improvement of bioavailability of bioactive compounds.Nano emulsion's latest application in diverse areas such as drug delivery (pharmaceutical),cosmeceutical, and nutraceutical. Clarifications about different mechanism of nano emulsiondevelopment that are frequently used were provided. Correspondingly, popularcharacterization techniques for nano emulsion such as determination of particle size, polydispersity index (PDI), zeta potential and viscosity were reviewed. Eventually, summaryof physical and chemical instability in addition to the regulatory aspects ofnano emulsionwas provided. Nano emulsions have been proved excellent drug carrier systemfor drug local targeting through dermal sites or skin. The nano emulsion – based drugtargeting to lungs was initiated after their successful drug targeting to lungs was initiated tobrain through

nasal route. Recently, nano emulsions containing Amphotericin B has beendevelopment for lungstargeting through Pri Sprint jet nebulizer. Nano emulsion is administered by various routes, such as oral, topical, parenteral, transdermal, and so on.

Keywords: *Nano emulsion, pharmaceutical, cosmeceutical, nutraceutical, Amphotericin B.*

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PD-1/PD-L1 Inhibitors as Potential Target for Cancer Therapy

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Abstract: Cancer is a group of diseases involving abnormal cell growth with the potential to spread other parts ofthe body. These contrast with benign tumours, which do not spread. Presently PD-1/PD-L1 inhibitors havegained considerable attention from biomedical scientist treat various types of cancer. PD-1/PD-L1inhibitors are a group of immune checkpoint inhibitors as front-line treatment of multiple types of cancer.Recent studies showed that tumour cells 'edit' host immunity in several ways to avoid immune defences in the tumour microenvironment. This phenomenon is called "cancer immune escape." One of the mostimportant components in this system is an immunosuppressive co-signal (immune checkpoint) by the PD-1 receptor and its ligand, PD-L1. PD-1 is mainly activated T cells, whereas PD-L1 is expressed on severaltypes of tumour cells. Preclinical studies have shown that inhibition of the interaction between PD-1 andPD-L1 activate the T-cell response and show antitumor activity. Several clinical trials of PD-1/PD-L1signal-blockade agents have exhibited dramatic antitumor efficacy in patients. Our review focused on therecent available PD-1/PD-L1 inhibitors and their mechanism of action.

Keywords: *PD-1/PD-L1, immune checkpoint inhibitors, clinical trials, adverse events, tumour microenvironment, monoclonal antibody.*

BCDACPT/P-119/2022

Pharmacovigilance: An Important Step in Patient Safety

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Abstract: Pharmacovigilance plays an important role in the healthcare system through assessment, monitoring and discovery of interactions among drugs and their effects in human beings. As such, pharmacovigilance heavily focuses on adverse drug reaction which defined as any response to a drug which is noxious and unintended, including lack of efficacy. Hence, need of pharmacovigilance arises which include, securing the early detection of new adverse reactions or patients of exceptional sensitivity; and introducing certain measures in order to manage such risks. Moreover, it is essential that new and medically adapting treatments are monitored for their effectiveness and safety under real-life conditions after being marketed. Pharmacogenetics and pharmacogenomics are an essential part of the clinical research. Variation in the human genome is a cause of variable response to drugs and sensitivity to diseases are determined, which is important for early drug invention to PV. Hence, PV helps to the patients get well and to manage optimally or ideally, avoid disease is a collective responsibility of industry, drug regulators, clinicians and other healthcare professionals to

enhance their contribution to human health. The role of pharmacovigilance is to check the safety monitoring in clinical trials involves collecting adverse reactions, laboratory investigations and details of the clinical examination of patients. Pharmacovigilance staff may be involved to varying degrees in all phases of clinical trials, including the planning, execution, data analysis and reporting of drug safety.

Keywords: *Pharmacovigilance, healthcare, adverse drug reaction.*

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Recent Trends and Future Directions in Music Therapy-A Review

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Abstract: Music therapy is the clinical, evidence-based use of music interventions to accomplishindividualized therapeutic goals. Because music can be used for diverse applications, musictherapists practice in a variety of healthcare and education settings. Music for pain relief benefitsindividuals experiencing a low to moderate amount of pain more than those experiencing a highdegree of pain. A patient's preferred music should be considered when it is used for pain relief.The increase of endogenous opioids through music may be the reason for painrelief. Perioperatively, music can decrease preoperative anxiety, reduce intraoperative sedative andanalgesic requirements, and increase patient satisfaction. Patient-selected music can reducepatient-controlled sedative requirements during spinal anaesthesia and analgesic requirementsduring lithotripsy. Music in the preoperative setting can reduce anxiety without affectingphysiologic measures of stress. Music can also increase patient satisfaction and reduce systolicblood pressure during cataract surgery after retrobulbar block. Perioperative music can reducearterial pressure, anxiety, and pain among women undergoing mastectomy for breast cancer. As anon-invasive intervention, the low sensory stimulation of music reduced anxiety and increasedcooperation in children undergoing induction of anaesthesia. Music therapy interventions that havetargeted nausea, both anticipatory or after treatment, have had conflicting results.

Keywords: *Music therapy, clinical goals, stress, relief pain etc.*

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Implementation of Molecular Docking and Design of Telmisartan-Oxalic Acid Cocrystals for The Enhancement of Solubility and Dissolution

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Abstract: The aim of the present study was to improve the solubility and dissolution of telmisartan by cocrystallization technique and apply molecular docking to examine the nature of thechemical interactions between telmisartan and the coformer as well as the solvent's role in the molecule's ability to cocrystallize. On physicochemical characteristics and drug release, theimpacts of different ratios of coformer were examined. Solubility studies suggested that cocrystallization technique with oxalic acid helps to increase the solubility of pure telmisartan and drug release study revealed that telmisartan-oxalic acid cocrystals

showed greater dissolution as compared to pure telmisartan. FE-SEM study suggested that preparedtelmisartan cocrystals showed rhomboid-shaped crystals with sharp edges and smoothsurface. FTIR study revealed that shifting in the vibrational frequencies of C=O group oftelmisartan in prepared telmisartan-oxalic acid cocrystal indicates the formation of supramolecular hetero synthon of the cocrystal. DSC and XRD study confirmed the formation ofprepared telmisartan-oxalic acid cocrystals. Molecular docking approach revealed that, telmisartan and oxalic acid can interact each other in presence of solvent system were coformer can form interactions principally with the others. The interactions, thereof, mayform several associations or bondings in between the drug and coformer modifying the planarity, bond energy, bond angles of the both which subsequently lead to cocrystallization. So, the present research concluded that prepared telmisartan-oxalic acid cocrystal is asuccessful application of crystal engineering approach to improve the physicochemicalproperties as well as to enhance the solubility and dissolution of telmisartan.

Keywords: *Molecular Docking, Cocrystallization, Supra Molecular Hetero Synthon, Solubility Enhancemen.*

BCDACPT/P-122/2022

Fabrication, Characterization&In-Vitro Evaluation of Losartan Potassium Loaded Algino-Diospyros Sustained Release Microspheres

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Abstract: The aim of the present study was to prepare and evaluate oral sustained release mucoadhesivealgino-diospyros microspheres of losartan potassium by ionic gelation method. Diospyrosmalabarica gum was extracted from the unripe fruits of Diospyros malabarica and theextracted mucilage was examined whether it is able to sustain the drug release for longer duration or not. All the prepared formulations were subjected to various physico-chemical studies, ex-vivo mucoadhesion study, in-vitro drug release studies and by different analytical studies. It was observed that Diospyros malabarica gum has an excellent mucoadhesionproperty. In-vitro drug release e study stated that algino-diospyros microspheres were able to sustain the drug release for prolong period. FE-SEM of optimized algino-diospyrosmicrospheres revealed that the microspheres were discrete and spherical in shape. FTIR study revealed that there were no interactions between drug and polymers in the preparedmicrosphere formulations whereas DSC revealed that in the optimized microsphere formulation, losartan potassium was present in a relatively amorphous state, dissolved or molecularly dispersed state. X-ray diffraction study stated that the drug molecules were dispersed at molecular level in the micromatrix system and no crystallinity of the drug was noticed. From the above research it may be concluded that naturally isolated Diospyros malabarica gum can be used as a polymer for sustain release drug delivery systems and algino-diospyros polymeric combination was suitable to deliver losartan potassium in a sustained manner for longer duration.

Keywords: *Diospyros malabarica gum, algino-diospyros microspheres, Mucoadhesive microspheres*

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Emulsion: In Pharmaceuticals and Cosmeceuticals Preparation

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Abstract: An emulsion is consisting of at least two immiscible liquid phases, one of which is dispersed asglobules in the other liquid phase, stabilized by the presence of emulsifying agent. Emulsiontypes are oil-in-water (o/w), water-in-oil (w/o), Water-in-oil-in-water (w/o/w) and oil-in-water-in-oil (O/W/O). To form stable emulsions, an emulsifier is required to reduce the droplet sizes ofthe emulsions and enhance the emulsion stability. Thedevelopment and production of goodquality emulsions depend on the knowledge of emulsion preparation, stability mechanisms andrheological studies. The process of emulsion formation is called "emulsification". Emulsificationis a dynamic and non-spontaneous process and energy is required to produce the droplets. Thereare several methods of emulsification including; simple shaking, mixing. The emulsion stabilityrelated to the type and amount of surfactants. These surfactants promote the stability of theemulsion by forming films around the water drops in water/oil interfaces. Emulsions have beenwidely used in different industrial processes. Emulsions are commonly used for topicalpharmaceutical and cosmetic products, such as lotions and creams syrup. The largest group ofemulsions commercially available as medicines are dermatological products for topicalapplication. Emulsions are considered very important in everyday life. A huge number ofproducts from food tocosmetics deal with emulsions such as mayonnaise, milk, butter, creams, shampoos and many other daily products.

Keyword: *Emulsion, emulsifying agent, emulsification, dermatological*

BCDACPT/P-124/2022

Personalized Medicine, A Future of Healthcare System

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Abstract: There's a great deal of hype on the concept of Personalized Medicine (PM), i.e. separating treatments as personalized as the complaint. The approach stands on relating inheritable, epigenomic, and clinical information that allows to improve our understanding of how aperson's unique genomic portfolio makes them vulnerable to such conditions. Those drugs areembedded in the belief that individualities may need to have interventions handed to add our capability to prognosticate which medical treatments will be safe and effective for individualcase. PM generally focuses on precautionary drug and favours taking pro-active conductrather than just reactive. In this review, we consider the insist for personalized drug, its literalprecedents, the arising technologies that are enabling it, some recent indications includingsuccesses and errors, ways of vetting and planting individualized drugs, and unborn directions, including implicit ways of treating individualities with fertility and sterility issues. It has been tested to some degree through the operation of arising technologies similar as DNA sequencing, proteomics, imaging protocols, and wireless health monitoring bias, which have revealed great variation in complete processes. We also consider current limitations of

individualized drug. PM may increase the effectiveness of being treatments and negate the essential problems associated with non-PM approaches. Increased case position will allow for the enhanced operation of PM performing in reduced costs and quality of life improvement.

Keywords: *genomic, prognosticate, vetting, proteomics, imaging protocols.*

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Pharmacists as Front-Line Workers in Pandemic

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Abstract: COVID-19 is a contagious disease with millions of people who have contracted the virus anda significant number of them lost their lives, resulting in a tremendous social and economicshock across the globe. It is caused by a virus, the severe acute respiratory syndromecoronavirus 2 (SARS-CoV-2). The first known case was identified in Wuhan, China, inDecember 2019. The disease quickly spread worldwide, resulting in the COVID-19 pandemic.Pharmacists around the world have continued to provide direct patient care and performfrontline duties for their communities during this pandemic and who can forget the manylives which were sacrificed in the line of duty, but are often relegated to the background andoverlooked when frontline workers are heralded. Pharmacists are medication expertsproviding patient care in a variety of settings including hospitals, clinics, communitypharmacies, long-term care, physician offices, and national and public health.Many nations are trying to tackle the repercussions of the so-calledwaves, the latest beingthird wave by OMICRON variant, which have shaken the healthcare system and led toquestion the resource management and governance failures that have affected thousands oflives. It is difficult to bring the situation under control in several places, predominantlymiddle- and low-income countries. Thus, to succeed in providing all the healthcare services, changes pertaining to operations, supply management, safety precautions, spreadingawareness, vaccination drives, etc., must be incorporated by healthcare workers, especiallythe pharmacists, to create a maximum positive change.

Keywords: *Pharmacists, maximum positive change.*

BCDACPT/P-126/2022

Exploring Natural Product Chemical Space for Rational Identification Of Potential Binders Against Monkeypox Virus Envelop Protein.

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Abstract: Monkeypox Virus (MPXV), the causative agent of Monkeypox (MPX) disease, is anemerging zoonotic pathogen spreading in different endemic and non-endemic nations and creating outbreaks.Monkeypox Virus (MPXV), an enveloped double-stranded DNA virus, belongs to theOrthopoxvirus genus and Poxviridae family. MXPV is the causative agent of emergingzoonotic disease Monkeypox (MPX) (1). Since May 2022, cases of MPXV infection havebeen reported in non-endemic nations such as the United States of America, the UnitedKingdom, Germany, and Australia. MPX treatment mainly includes Cidofovir and Tecovirimat but they have several side effects and solely depending on these drugs may

promote the emergence of drug resistant variants. Hence, new drugs are required tocontrol the spread of the disease. In this study, we explored the ZINC natural productdatabase using virtual screening approach. After Molecular dynamics analysis andAbsorption, Distribution, Metabolism, Excretion and Toxicity (ADMET) based screening, weidentified 20 compounds (binding affinity ~ -10.6 kcal/ mol to ~-9.0kcal/ mol) against F13protein of MPXV receptor. Molecular Dynamics (MD) simulations suggest all of thesecompounds can change the C-alpha backbone, residue mobility, compactness and solventaccessible surface area of the protein. Our results suggest few alkaloids might impedeMPXV DNA synthesis by inhibiting F13 and L2R. These findings strongly suggest thatthese small molecules for drugrepurposing are worth investigating in vivo and in vitro forclinical applications.

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Theoretical Prediction of Pharmacokinetics and Drug like profile of chemical compounds

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Abstract: The science of computer aided drug design and modelling significantly accelerate the drug discovery process. It significantly assists to develop less toxic, selective and potent therapeutics. Recent studies depict, the pKa and pharmacokinetics profile of a bio active hits pose major road blocks for developing clinically useful therapeutics and one of the profounds causes of the failure of his in the clinical trial. The estimation of gross human lipophilicity is a complex process. The compartment model theory provides significant insight. However, considering the complexities of compartment model-based estimation, large number of physics based as well quantum calculation based statistical methods already developed by the researchers to predict the Pharmacokinetics (absorption, distribution, metabolism and elimination in short ADME) profile of a hit. Therefore, it was decided to evaluate the Pharmacokinetics profile of sets of potential hits. In the 1 st set a series of known bio-active compounds with the history of clinical trial failure were selected. In the 2 nd set compounds with in-vitro activity with the profile of in vivo failure profile were selected. The 3 rd set contains molecules with known pharmacokinetics profile and used clinically. The present study utilizing the machine learning technology (ML) identify the hidden layer of pharmacokinetics profile in combination and reports the probability of a given new molecule's Pharmacokinetics profile to obtain a successful clinical trial candidate. In addition, rational Drug likeness profile prediction tools were utilized in order to validate developed ML model.

Abstracts for Oral Presentations

BCDACPT/OP-01/2022

A Novel Approach for the Method Development and Validation of Ibuprofen by LC-MS/MS in Human Plasma

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Abstract: Ibuprofen is a non-steroidal anti-inflammatory drug (Molar mass 206.29 g/mol) which is widely used to reduce fever, pain, and inflammation and in the treatment of patient ductus arteriosus (PDA) in preterm infants. However, a quantitative approach is needed to investigate the pharmacokinetics of ibuprofen in humans. The bioanalytical method was carried out in liquid chromatography-tandem mass spectrometry (LC-MS/MS) which is extremely sensitive, accurate, rapid, and simple. In this study, a LC-MS/MS technique was created and used to identify ibuprofen in human plasma. Diclofenac was used as an internal standard in this study. The present method have some novel aspects, these are only 100 µL healthy human blood plasma was used for the method, the total chromatographic run time was 4 minutes, an easy protein precipitation technique was used for plasma extraction, in validation the accuracy and precision intra-day and inter-day were passed as per guidelines. The calibration curve was linear across a concentration range of 156.25–20000 ng/mL. The nominal values for low, medium and high quality control (QC) concentration levels were (468.75, 7500, and 15000 ng/mL, respectively). For ibuprofen concentrations at the lower limit of quantitation (LLOQ: 156.25 ng/mL). The stability studies (Like freeze thaw stability, autosampler stability, bench top stability, short term stability, long term stability) were passed as per EMA and USFDA guidelines. Thus, the fully validated LC-MS/MS method was easy to apply in bioavailability and bioequivalence studies.

Keywords: *Ibuprofen, Bioanalytical method development and validation, Human plasma, Stability study, LC-MS/MS*

BCDACPT/OP-02/2022

Comparison of Natural and Synthetic Superdisintegrants in the Fabrication of Carvedilol Tablets

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Abstract: Superdisintegrants are used for rapid disintegration in water. Those are used for mouth dissolving tablets and make the drug release better. Some mechanisms are – swelling, wicking, heat of wetting, chemical reaction, particle repulsive forces, deformation recovery, and enzymatic reaction. In this work tablets were formulated by using natural and synthetic super disintegrants in different concentration. Guar gum and crospovidone were used in the study. Carvedilol was used as a drug in the formulation. For the tablet manufacturing direct compression method was adopted. Superdisintegrants were used in the concentration range of 4% to 6% for developing the tablets by direct compression method. The tablets were subjected to weight variation, hardness, friability tests. The results were found to be

satisfactory. Specific test to confirm the action of superdisintegrants like Swelling index, disintegration was performed. Swelling index was found to be 21.36 and 5.76 for the tablets with Guar gum and Crospovidone respectively. In disintegration times the results were 35 min and 17 sec for the tablets with Guar gum and Crospovidone respectively. It was observed that during performing swelling ability, the tablets swell to extreme extent where guar gum was present whereas tablets immediately broke where Crospovidone was used in the formulation. The mechanisms were wicking and swelling for Crospovidone and Guar gum respectively.

Keywords: *Superdisintegrants, swelling, wicking, concentration.*

BCDACPT/OP-03/2022

Fabrication of Terbinafine Hydrochloride Loaded Nanostructured Lipid Carriers (NLC) by D-Optimal Mixture Design

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Abstract: Nanotechnology has gained tremendous popularity over the years due to its therapeutic efficacy, particularly for targeted drug therapy. Nanocarriers have achieved a forefront with several potential applications in drug delivery and research. Among them, Nanostructure lipid carriers have achieved importance. Nanostructured lipid Carriers or NLCs are novel pharmaceutical formulations that are mainly composed of physiological and biocompatible lipids, surfactants, or co-surfactants. NLC was prepared by using the hot-homogenization technique. For the preparation of NLC, the different Solid lipid: Liquid lipid and Lipid Phase: Aqueous phase ratios were determined by using the D-optimal Mixture design. Sixteen formulations were shown by the software. In the formulation aspect, the lipid mixture had been prepared by mixing stearic acid (solid Lipid) and olive oil (Liquid Lipid) by continuous stirring in a hot condition (70ºC). Aqueous form of Terbinafine Hydrochloride was mixed with the lipid phase in a hot condition (70ºC) in the presence of surfactant (tween 80). The mixture was placed under a homogenizer for 20-30 min at 5000-8000 rpm. The hot condition was maintained throughout the process. The mixture was sonicated and kept for 48 hours. Dynamic Light Scattering (DLS) was performed to measure the particle size and polydispersity index of the NLC formulation. The results found were within the nano range (10-1000 nm) however the particle size needs to be modified further.

Keywords: *Nanostructured Lipid Carriers (NLCs), Terbinafine Hydrochloride, Antifungal Drug, Polydispersity Index.*

BCDACPT/OP-04/2022

Development of Ofloxacin-loaded Nanogel for Ocular Drug Delivery

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Abstract: Ocular drug delivery is a sort of dosage form used to deliver, administer, or inject a substance into the eye to treat ocular diseases. In case of Ocular Drug Delivery system, intraocular pressure has always been a great challenge. Recently, there has been a growing

interest in merging the benefits of hydrogels and nanostructured lipid carriers (NLC) to create nanogels, for a variety of pharmacological applications. With the help of Simplex Lattice Design, formulations were made with variables. Hot homogenization method was used for the preparation of NLC. Lipid mixture has been made by mixing stearic acid (Solid lipid) and Castor oil (Liquid lipid) by continuous stirring in hot condition (70°C). In the meantime, the required amount of Ofloxacin was dissolved in double distilled water to prepare an aqueous phase. The aqueous phase was mixed with the lipid mixture in the presence of a surfactant (Tween 80) for homogenization up to 15 to 20 minutes at the speed of 5000 to 8000 RPM. Ofloxacin–loaded NLC had been incorporated in hydrogel using Carbopol 934p as a gelling agent, for the preparation of Nanogel. The dynamic Light Scattering (DLS) method was performed for the measurement of particle size and the polydispersity index. The results confirmed the size of the particles were within the nano range (10 to 1000 nm).

Keywords: *NLC, Nanogel, DLS, Hot homogenization, Polydispersity index.*

BCDACPT/OP-05/2022

Scientific Validation of Anthelmintic Activity of Leaf Extracts of *Mangifera indica* L. using Experimental Animal Model

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Abstract: *Mangifera indica*, 'King of Fruits', commonly used as ayurvedic herb is a traditional drug growing as a canopy spreading wide in an area being used since ages and possesses many ethnomedicinal claims including anti-diabetic, anti-oxidant, anti-viral and anthelmintic activities. These studies are very interesting as well as encouraging indicating this herb should be studied and investigated more extensively in order to confirm the results and to reveal other potential pharmacological activities. Among various ethno medicinal properties of the plant, the anthelmintic activity of the ethanolic extract of the leaf is being performed in order to determine, analyze and assess whether the extract is effective against the presence of *Pheretimaposthuma* by determining the worms' time of paralysis and death. In addition, the efficacy of the extract is also compared to Albendazole. The study was done using petridish test and the extract was given at five different concentrations. Based on the experiment done, the leaves of the *Mangifera indica* possesses anthelmintic property. Lastly, the worms that were submerged in the extract that contain the highest concentration arrived to paralysis and death which concludes that the ethanolic extract of the leaf of *Mangifera indica* possesses anthelmintic activity nearly equivalent to Albendazole. Therefore, it is necessary to take this medicinal herb into account as a perspective origin in the development of new lead molecule for better anthelmintic activity.

Keywords: *Mangifera indica, ethanolic extract, phytochemicals, Albendazole, anthelmintic activity.*

BCDACPT/OP-06/2022

Study of Microbeads in Cosmetic Products and Their Impacts

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Abstract: Beads or micro-beads are tiny solid particles measuring about 1mm in diameter or less. They are also known as microplastics because the beads are mostly made of plastic or plastic-like material. They are hugely used in the cosmetic industry, in soaps, shampoo, body wash, toothpaste, wrinkle creams, scrubbers, face wash, facial masks, shaving creams etc. as skin exfoliating agents, cleansing agents or as vehicles. Usually, these microplastics are made up of polymers like polyethene, polypropylene polymethyl methacrylate, nylon, acrylates etc. However, there are different types of beads based on their composition, uses, or applications. Generally, these beads are made by encapsulation of lipophilic active, functional and cosmetic ingredients. The beads have proven advantageous in many cases but have also shown a negative environmental impact. More than their usefulness, the main concern surrounding the beads has shifted towards environmental consciousness. Several studies on the rising issue have shown that these beads are responsible for a significant proportion of human-made waste in the aquatic environment. Hence a case study on their impact in India would be covered in the presentation. Therefore, in this review presentation, a description of the beads, their uses, preparations, impacts and sustainable alternatives will be reviewed.

Keywords: *microbeads, microplastics, polymers, environmental impacts, sustainable alternatives.*

BCDACPT/OP-07/2022

Estradiol Mucoadhesive Buccal Film for Hormone Replacement Therapy: Development and Evaluation

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Abstract: A number of symptoms, including vasomotor (hot flushes and night sweats), genito-urinary syndrome (vaginal dryness and urinary symptoms), sexual dysfunction, mood swings, and sleep disturbance, are caused by the age-related loss of circulating estrogen that takes place during the menopausal transition. These symptoms frequently last for more than a decade. Additionally, decreases in estrogen levels raise the dangers of long-term problems like osteoporosis, cardiovascular disease, and cognitive decline, among others, which have an impact on women's quality of life. Although oral estrogens are the most popular treatment for menopausal symptoms, they have a low bioavailability, and there are worries about their safety, which causes customers to be quite concerned. A novel dosage form known as mucoadhesive buccal films avoids the first-pass metabolism, has a quick onset of action, and most importantly, has higher patient acceptance. Using film-forming polymers, we created a mucoadhesive estradiol film for hormone replacement therapy in the current work. To increase solubility and thus, incorporate estradiol, a poorly water-soluble drug, into a formulation made from them hydrophilic polymers, two approaches were evaluated: co-solvency and Nano-emulsion. Mechanical and physicochemical properties of the films were investigated.

Keywords: *estradiol; film; mucoadhesive; menopause.*

BCDACPT/OP-08/2022

Formulation and Evaluation of Antimicrobial Efficiency ofPoly-Herbal Hand Wash

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Abstract: Certainly, many of the drugs marketed as traditional herbal remedies have been in use for a very long time. The primary mode of infection transmission to patients has always been through hands. Therefore, the major purpose of developing a herbal hand wash was to promote "personal hygiene." Employing methanolic extracts of dried leaves from *Azadirachta indica*, *Ocimum gratissimum*, and *Coriandrum sativum*, the current study aimed to develop a formulation of polyherbal handwash. Other components included were methyl paraben, sodiumlauryl sulphate (SLS), glycerin, sodium lauryl sulphate (HPMC), aloe vera, lavender oil, and lemon juice. Each of the four batches of hand wash formulations was tested for stability, consistency, appearance, colour, grittiness, pH, viscosity, foam height, and other physical attributes. A range of microorganisms, including *Bacillus subtilis*, *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeroginosa*, *Salmonella typhi*, *Aspergillus niger*, and *Candida albicans* were examined for anti-microbial activity using the agar well diffusion method. The results indicated that manufactured herbal hand wash formulations, especially F3, had a significant zone of inhibition in contrast to typical commercial handwash, indicating that the extract of these phytoconstituents might be used to develop handwash with antimicrobial properties. As a result, the research demonstrates that the herbal handwash formulation is stronger to commercial handwash in reducing the amount of bacteria on hands and may be used as an alternative handwash derived from natural sources without showing any side effects.

Keywords: *Polyherbal handwash, antimicrobial activity, zone of inhibition, microbes.*

BCDACPT/OP-09/2022

Mechanobiology: A New Aspect of Disease Manifestation and Drug Designing

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Abstract: Microbial contamination or infection and Systemic disorder are the two main manifestation of disease occurrence. Chemical components are responsible for occurrence of pathophysiological changes in disease state. Mechanical forces such as gravity, tension, shear, compression, hydrostatic pressure, osmotic pressure may also cause disease through cell signaling by mechano transduction. So mechanical force can also be utilized for the correction of disease state. Mechanobiology research is an upcoming way of drug development and translational medicine research. It is now known that changes in cellular mechanics may cause diseases like cancer, infectious diseases, cardiovascular diseases and ageing. Fibroblast and chondrocyte are the cell that affected by mechanical cues like tension, compression and shear pressure. Fibroblasts synthesize structural proteins, some of which are mechanosensitive and form integral part of the extracellular Matrix such as collagen (types I,

III, IV, V, VI) elastin, lamin etc. Apart from the synthesis of structural proteins, fibroblasts make Tumor-Necrosis-Factor-alpha (TNF-α), Transforming-Growth-Factor-beta (TGF-β) and matrix metalloproteases that plays in tissue in tissue maintenance and remodeling. Chondrocytes are the only cells found in healthy cartilage which produce and maintain the cartilaginous matrix that consists mainly of collagen and proteoglycans. Presently mechanical therapies are in clinical use. Cytoskeleton maintain the overall organization of cell and hence maintain the cellular transport mechanism which is disturbed by various mechanical stimuli and disrupt the micro tubular functioning and also causes neurodegenerative disease. Muscular defects may arise from the dysfunctional actine cytoskeleton.

Keywords: *Mechanobiology, transduction, fibroblast, chondrocyte*.

BCDACPT/OP-10/2022

Grafting of Acrylamide onto Polysaccharide Obtained from Taro (*Colocasia esculenta*) Stolon: Synthesis, Characterization and Applicationin Sustained Release Tablet Formulation

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Abstract: Taro stolon is an edible part of plant Taro (*Colocasia esculenta*), popular in India and Bangladesh. Mucilage was extracted by decoction method and polysaccharide was precipitated by using acetone. Phytochemical screenings were done to check the presence of phytoconstituents. Grafting is a technique where branching of a natural polysaccharide occurs and the attached vinyl groups increase the hydrophobicity of the back bone carbohydrate polymer. In this study, we have grafted polyacrylamide on the taro stolon mucilage powder (TSP) using ceric ammonium nitrate (CAN) as reaction initiator under microwave irradiation. Seventeen different batches were grafted where the variables were amount of monomer (acrylamide), amount of CAN, microwave radiation time. Effect of these variables on grafting percentage, grafting efficiency and percentage conversion were determined. Several characterizations like FTIR, NMR, TGA, DSC, XRD, SEM, swelling study were done for the native and grafted TSP. Six batches of diclofenac sodium tablets were prepared with the polymer of six batches having different grafting percentage. Tablets were prepared by wet granulation technique. Micromeritic properties of granules were observed. Weight uniformity, content uniformity, hardness, friability of the tablets was evaluated. Effect of grafting percentage on release profile of tablets was observed from in-vitro dissolution study (upto 10 hour). It was concluded that grafted polymer was successfully applied as sustained release polymer and sustain manner was increased with increased grafting percentage.

***Keywords*:** Taro stolon mucilage powder (TSP), grafting, sustained release tablet

.BCDACPT/OP-11/2022

Phytochemical Analysis, Characterization, Evaluation of Antidiabetic Activity of Traditional Medicinal Plant

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Abstract: Diabetes mellitus (DM) is a metabolic disorder, caused by a complete or comparative insulin deficiency. A number of evidence by clinical studies on diabetes put forward that the Reactive Oxygen Species (ROS) and oxidative stress induced micro and macro vascular complications, abnormal mediator's generation such as transcription factors, inflammatory cytokines plays a major role in the advancement of diabetic complications and developed as a chief dynamic factor for organ failure. *Piper chaba* Hunter (Piperaceae) is a traditional medicinal plant native to South Asia especially in Bangladesh and India. The secondary metabolites such as alkaloids and alkamides have been isolated from various parts of this plant by using different solvent extraction technique. Among the isolated compounds, Pyrrolidine ring containing a novel piperine dimer chabamides, Benzopyran ring containing potent antioxidant Poly Phenolic compound Isoflavan-4-one, amide alkaloids piplartine and piperlonguminine have been documented for therapeutic effects in various models.
Researchers showed that the methanol stem bark extract of *Piper chaba* exhibit diverse biological activities with therapeutic benefit such as anti-microbial, anti-diabetic, analgesic, anti-inflammatory, and immune-modulatory effect. Bioactive molecules derived from this plant showed differential expression of mRNA levels in fibroblast cell isolated from the embryo of a mouse i.e.3T3-L1 cells. In our present study, we focus for searching new bioactive molecules and it's mode of action for antidiabetic therapy.

Keywords: *Diabetes, Reactive oxygen species, 3T3-L1 cells, Alkamide, Chabamide*

BCDACPT/OP-12/2022

Phytochemical Analysis and Evaluation of Pharmacological Activities of Some Edible Tubers (Dioscorea Species) from Jhargram District of West Bengal, India.

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Abstract: Natural products specially plants are the major sources worldwide in searching of promising lead compounds, that play an important role in future drug development programs. Wild tubers obtained from different Dioscorea species long been used as food material by tribal communities and local peoples of forest surrounded area in the district of Jhargram, West Bengal. In various literatures the ethno-medicinal practice of Dioscorea mostly by Lodha tribal community in this area described and documented. Dioscorea species is a climber herb with flowers stalk, leaves triangular ovate, often heart-shaped, straight and ginger like tubers, occasionally in bulky size. The tubers of Dioscorea are used in the management of a number of illnesses such as gastrointestinal disorders, sour throat, diarrhoea, liver disease, abdominal pain, wounds, burns and anemia. The tubers are also supposed to possess activities like antimicrobial, antioxidant, stomachic and hypoglycemic activities. Despite its traditional use by different ethnic group against various disease conditions including diabetes mellitus, there are inadequate scientific data to support

traditional medicinal value present in Dioscorea species. It would be proposed, therefore, to screen wild tubers from Jhargram district of West Bengal for different biological activities as well as searching new bioactive molecules and mode of action for various therapeutic activities.

Keywords: *Dioscorea, Tubers, Lead compound, Antioxidant, Hypoglycemic*

BCDACPT/OP-13/2022

An Overview on the Toxicological Effect of Ethylene Glycol and Diethylene Glycol

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Abstract: Ethylene glycol (IUPAC name: ethane-1,2-diol) is an organic compound (a vicinal diol) with the formula $(CH_2OH)_2$. It is an odourless, colourless, flammable, viscous liquid. Diethylene glycol (DEG) is an organic compound with the formula $(HOCH_2CH_2)_2O$. It is a four-carbon di-mer of ethylene glycol. It is a solvent for nitrocellulose, resins, dyes, oils and other organic compounds. Both of these compounds are used as excipients in various pharmaceutical products. In spite of having so many utilizations, from recent news, we came to know about some severe adverse effects of ethylene glycol and propylene glycol in human body specifically in children which can lead to serious health hazard or even death. Some medications containing this compound at a specific concentration range has turned out to be life-threatening. Patients use medications to recover their health but what happens when the medication is turning out to be life-threatening! In my oral presentation, I will be explaining about the toxicological effect of ethylene-glycol and di-ethylene-glycol and will also review the situation that made these certain medications a concern all over the world.

Keywords: *Ethylene Glycol, Diethylene Glycol, Toxicity, Adverse effects.*

BCDACPT/OP-14/2022

Biosensors and Biomarkers inParkinson's Disease

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Abstract: One of the most significant conditions affecting the aged, Parkinson's disease (PD), is linked to a decline in functional capacity and quality of life. As per WHO, around 8.5 million people worldwide suffer from PD, a progressive neurological disorder. The most important diagnostic tools for PD include a neurologist's assessment of clinical symptoms and movement disorders and a few common laboratory tests. However, conventional approaches have limitations like poor sensitivity and selectivity, prohibitive cost, and a lack of modern equipment. A biomarker is a measurable, objective sign of a physiological process, pathological development, or pharmacological reaction to a therapeutic intervention. Clinical applications of biomarkers have varied. There are different ways of diagonisation for Parkinson's disease and other neurological disorders. Biomarkers can be divided into the following groups: clinical, imaging, biochemical, and genetic. The development of optimal biomarkers would have multiple positive effects, including better risk assessment and earlier

clinical diagnosis of PD, as well as a greater understanding of the disease's pathogenesis and progression. By providing a new platform for accurate, reproducible, and multidimensional identification with minimum trouble and pain for patients, biosensor technology welcomes a novel approach to PD diagnosis. Biosensing systems, for example, offer potential tools for treating and monitoring PD. Electrochemical approaches have been at the forefront of this advancement in biosensor technology thanks to advancements in material science, such as the utilisation of gold nanoparticles (AuNPs), carbon nanotubes (CNTs), and quantum dots (QDs) (CNTs).

Keywords: *Biosensor, Biomarkers, Parkinson Disease, Nanoparticles, Nanotubes Corresponding.*

BCDACPT/OP-15/2022

Recent Status in Ocular Drug Delivery System

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Abstract: Ocular drug delivery has been a major challenge for scientists due to its unique anatomy and physiology which contains various types of barriers such as different layers of cornea, sclera and retina including blood aqueous and blood–retinal barriers, choroidal and conjunctival blood flow etc. These barriers cause a significant challenge for delivery of a drug alone or in a dosage form, especially to the posterior segment of the eye. In the past two decades, ocular drug delivery research accelerated advanced towards developing a novel, safe and patient compliant formulation and drug delivery devices/techniques, which may surpass these barriers and maintain drug levels in tissues. Various types of dosage forms such as nanoparticles, nanomicelles, liposomes and micro-emulsions have been developed. Anterior segment drug delivery advances are witnessed by modulation of conventional topical solutions with permeation and viscosity enhancers. Posteriorocular delivery, research has been immensely focused towards development of drug releasing devices and nano-formulations for treating chronic vitreoretinal diseases. Also, these novel devices and formulations are easy to formulate, no/negligibly irritation, possess high precorneal residence time, sustain the drug release, and enhance ocular bioavailability of therapeutics. Direct intravitreal implants, using biodegradable or non-biodegradable polymer technology, have been widely investigated for the treatment of chronic vitreoretinal diseases. The recent researches are focusing on reducing the frequency of doses by making the drugs sustained release. Drug delivery via ophthalmic route has proved significant advancement for future perspectives.

Keywords: *Cornea, Eye, Implants, Liposomes, Nano micelles.*

BCDACPT/OP-16/2022

Pharmaceutical Nanotechnology: from the Research Scale to the Human Welfare

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Abstract: Nanotechnology is considered as a novel and rapidly evolving zone in the pharmaceutical and medicinal field. To date, numerous categories of nano-systems having a

diameter of 1–1000 nm like microspheres, niosomes, carbon nanotubes, nanoparticles, virosomes, nano-sponges, etc. entrapped, encapsulated, dissolved, or linked to the active pharmaceutical ingredient have been already fabricated. Such type of nanomaterials can be fashioned by utilizing several methods depending on the physicochemical characteristics of the polymer(s) used as well as the selected drug candidate(s). Dispersion of pre-formed polymers, co-acervation, polymerization, nano-spray drying, supercritical fluid technology, etc. are the most commonly used techniques for the development of these nano-carriers. The key benefits of nano-systems as a drug delivery system are to control particle size, surface properties, drug release pattern so as to confirm site-targeted drug activity at a controlled therapeutic rate and dosing regimen with reduced adverse drug reactions. Nano-materials can be employed in the treatment of tuberculosis, kidney and skin diseases, different types of cancer. They also grabbed the chance to accomplishment in production of COVID-19 vaccines with higher efficiency based on lipid nanoparticles. In the recent eras, several nano-pharmaceuticals have been approved by Food & Drug Administration for clinical use through oral, transdermal, and intravenous routes. Nanotechnology has been proficient to overcome the difficulties associated with traditional drug delivery to a larger extent. There is no doubt that nanotechnologies have enabled the improved quality of healthcare system, from diagnosis to therapeutic interventions by providing a platform for advances in biotechnological, medicinal and pharmaceutical industries.

Keywords: *Nano-systems, microspheres, nano-sponges, co-acervation, polymerization.*

BCDACPT/OP-17/2022

Fabrication of Copper Nanoparticle Embedded Polysaccharide Based Hydrogel as Wound Dressing with Anti- Bacterial Property

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Abstract: Currently, special emphasis is being given to the design and fabrication of antibacterial nanocomposite hydrogels for wound dressing applications. Herein, we report the characterization of naturally obtained Okra Gum (OG) reinforced with OG capped copper nanoparticles (OGCuNPs) based nanocomposite hydrogels (NHGs). Spherical nanostructures of OGCu NPs (~225 nm and Zeta potential -19mV) were achieved by facile Nanoprecipitation technique using ascorbic acid as a nucleating agent and subsequently made their NHGs via solution dispersion method. Spectral, thermal and structural characteristics of the developed materials were carried out. Antibacterial activity of the resultant NHGs showed by Agar well diffusion method for *S. aureus*. These results conveyed that the OGCu NPs incorporated OG NHGs can be used effectively in antibacterial applications.

Keywords: *Anionic okra gum; X-ray diffraction; spherical copper nanoparticle; hydrogels, antibacterial activity.*

BCDACPT/OP-18/2022

Carboxymethylation of *Cassia fistula* Seed Gum and its Application As a Polymer in Sustained Release Diclofenac Microbead

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Abstract: Here we focused on the modification of the Cassia fistula seed gum (CFSG) and fabricate sustained release microbead using additional natural polysaccharide sodium alginate (SA) and calcium chloride as cross-linker. Drug-polymer compatibility was observed by spectral and thermal analysis method. Surface morphology of the bead was observed before and after drug dissolution study. Drug entrapment efficiency and drug release was observed up to 10 hours. Due to carboxymethylation intra-particle and inter-particle cross linking was done that increase the drug entrapment into the beads and release the drug in more sustained manner. Highest drug entrapment of 98.02 and highest drug loading of 33.62 was observed. This study conveyed that utilization of naturally obtained polysaccharide for the fabrication of multi-unit extended-release dosage forms can give robust success to the field of green synthesis.

Keywords: *Cassia fistula seed gum, carboxymethylation, sustained release, microbead.*

BCDACPT/OP-19/2022

Formulation and Evaluation of Telmisartan- Maleic Acid Cocrystals for the Enhancement of Solubility and Dissolution

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Abstract: In this present research, a pharmaceutical cocrystal of poorly soluble drug was fabricated with a coformer, to improve the various physico-chemical properties of selected model BCS class II drug i.e., telmisartan. Cocrystals were prepared with different ratios of hydrophilic conformer i.e., maleic acid. The developed system was subjected to different physicochemical studies, in-vitro drug dissolution as well as different analytical studies. Solubility and dissolution studies revealed that prepared cocrystal system was able to improve the solubility and dissolution of telmisartan by 6 folds and 3 folds respectively. FTIR study confirmed that in presence of suitable solvent system when telmisartan was treated with maleic acid supra molecular hetero synthon cocrystals of telmisartan were developed. FE-SEM study revealed distinctive needle like morphological of pure telmisartan and prepared cocrystals revealed sharp and smooth platy crystals. DSC study revealed that the melting point of the optimized cocrystals was in between the parent molecules which may confirm the formation of a new solid phase i.e., cocrystals. XRD study revealed the formation of completely new peaks as compared to their parent molecules confirmed the formation of new solid phase i.e., cocrystal with all the solvent system. So, from the above research it has been concluded that when telmisartan was treated with maleic acid in presence of suitable solvent system, cocrystals are formed which not only help to improve the aqueous solubility but also help to improve the dissolution of telmisartan significantly.

Keywords: *Cocrystals, Coformer, Solubility Enhancement, Dissolution.*

BCDACPT/OP-20/2022

Design and Development of Losartan Potassium Loaded Pectino-Lannea Microparticulate System

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Abstract: The objective of the present research work was to fabricate oral sustained release mucoadhesive pectino-lannea microspheres of losartan potassium by suitable ionic gelation method. This method is selected for preparing the microspheres due to its low cost and non-utility of organic solvents. All the prepared formulations were subjected to different physicochemical studies, in-vitro drug release studies etc. The prepared microspheres exhibited good mucoadhesive property and showed high drug entrapment efficiency. As the concentration of natural polymer i.e., Lanneacoromandelica gum increased, the drug release from the matrix was decreases proportionately. FE-SEM study revealed that the microspheres were spherical in shape with very smooth outer surface. DSC study showed that there was no interaction between drug and polymers and in the optimized formulation; losartan potassium was present in a stable form. XRD studies confirmed that losartan potassium is present as a crystalline form in the pectino-lannea microsphere formulation. So, it was concluded from the above research work that Lanneacoromandelica gum is useful as a viscosity modifying agent and pectino-lannea polymeric blend was able to sustain the losartan potassium release for prolong period of time.

Keywords: *Lanneacoromandelica gum, Ionic Gelation Method, pectino-lannea microspheres.*

BCDACPT/OP-21/2022

A Cross-Sectional Study on Job Preference And Factors Influencing Future Career Planning Among the Undergraduate Pharmacy Students in West Bengal

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Abstract: *Objectives*: It is crystal clear that, during last few years, the pharmacy profession has transformed, expanded significantly and adapted itself to change in community needs. The purpose of this study was to describe the reasons why students choose pharmacy as the career. This study was conducted among under graduate students to identify of their future career preferences and most influencing factors of its. *Methods*: A cross sectional study was carried out at the pharmacy colleges located in urban, suburban and rural areas in West Bengal. This study utilized an online based survey. A self administered questionnaire was used to collect data from randomly selected participants using systematic random sampling methods. Since no past data was obtained, a pilot study consisting of 24 students were taken and their intentions to go to their working area in future were obtained the proportion of the different pharmacy fields. *Results*: "A career in Pharmacy is exciting" was opted as the most influential factors by 43.7% of the participants, followed by "family members' career choice" (35.9%) & "great demand for the workers in the pharmacy industry" (33.6%). Pharmaceutical

Industry was selected as the most preferred future career sector (40.5%), followed by Teaching & Research (20.6%), Hospital Pharmacy (16.8%). *Conclusion*: In the current study major influencing factors have been found as a career in Pharmacy is exciting and the Pharmaceutical industry was found to be most preferred sector to work in. This study emphasized in importance of understanding job preference and the factors influencing career devices.

Keyword: *Pharmacy profession, career planning, influencing factors.*

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