



BALAJI INSTITUTE OF PHARMACEUTICAL SCIENCES

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Laknepally (V) Narsampet (M) Warangal Rural (Dist) Telangana State 506331

Contact : +91 9866050044 (Office), +91 986652412 (Principal), +91 8718-230521 (Fax)

S.No	NAME OF THE BOOK/ CHAPTER/CONFERENCE PROCEEDINGS	LINKS
1	Application of Machine Learning in Analytical Chemistry	https://www.amazon.in/Applications-Machine-Learning-Analytical-Chemistry/dp/9357043373/ref=sr_1_1?qid=1690791318&refinements=p_27%3AManish+Kumar+Thimmaraju&s=books&sr=1-1
2	Scientific services committee	http://www.scientificpca.org/
3	International Science and Art Research	https://en.isarconference.org/dicle-1
4	GANUD International Conference on Gastronomy, Nutrition and Dietetics-IV	https://www.gastrodiet.org/files/ugd/614b1f_af2ceeecee854107be4cb4e2bb83dc5c.pdf
5	2nd International Black sea Modern scientific Research Congress	file:///C:/Users/BIPS/Downloads/YAHWEHCONFERENCEPAPERreleased%20(2).pdf
6	Current approaches in Drug Discovery	Amazon : https://www.amazon.in/dp/9395632828?ref=myi_title_dp Flipkart : https://www.flipkart.com/futuristic-trends-pharmacy-nursing/p/itm397b3483765df?pid=9789395632829 Google Books : https://books.google.co.in/books/about?id=1zPKEAAAQBAJ&redir_esc=y
7	Role of Machine Learning in Pharmaceutical industry	https://www.amazon.in/Role-Machine-Learning-Pharmaceutical-industry/dp/9355151098/ref=sr_1_2?qid=1690791318&refinements=p_27%3AManish+Kumar+Thimmaraju&s=books&sr=1-2
8	Emerging applications of bionanomaterials in medicine and drug delivery	https://www.sciencedirect.com/science/article/abs/pii/B9780128239155000125

9	ICECAA	https://ieeexplore.ieee.org/document/9936219
10	ICECAA	https://ieeexplore.ieee.org/document/9936165
11	ICISCS	file:///C:/Users/BIPS/Downloads/TOKYO_SUMMIT_2_International_Conference.pdf
12	Structural Multifunctional Nanofibers and Their Emerging Applications	https://link.springer.com/referenceworkentry/10.1007/978-3-319-53655-2_16
13	Fabrication of Nanofibers: Electrospinning and Non-electrospinning Techniques	https://link.springer.com/referenceworkentry/10.1007/978-3-319-53655-2_6
14	Causes and Pathophysiology of Nephrotic Syndrome in Childhood	https://www.intechopen.com/chapters/69943
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17	Practical Instrumental Analysis	https://www.amazon.in/Practical-Instrumental-Analysis-Manish-Thimmaraju/dp/1535094214/ref=sr_1_4?qid=1690791318&refinements=p_27%3AManish+Kumar+Thimmaraju&s=books&sr=1-4

18	Practical Instrumental Analysis-Pharm D	https://www.amazon.in/Practical-Instrumental-Analysis-practical-manual/dp/1987576136/ref=sr_1_3?qid=1690791318&refinements=p_27%3AMa nish+Kumar+Thimmaraju&s=books&sr=1-3
19	CRA	http://www.crsaustralia.org/controlled-release-asia-meeting/
20	CRA	http://www.crsaustralia.org/controlled-release-asia-meeting/
21	Scientific services committee	http://www.scientificipca.org/



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Laknepally, Narsampet, Dist. Warangal (Rural) - 506 331 (T.S.)
Off. : +91 98660 50044, Fax : 08718 230521
E-mail : principal@bipswgl.org.in
Website : www.bipswgl.org.in
Mobile : 9866652412

3.3.2 Number of books and chapters inedited volumes/books published and papers published in national/ international conference proceedings per teacher during last five year

S.No	Number of books and chapters inedited volumes/books published and papers published in national/ international conference proceedings	Academic year
1	07	2018-19
2	23	2019-20
3	01	2020-21
4	13	2021-22
5	29	2022-23

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1	Application of Machine Learning in Analytical Chemistry	https://www.amazon.in/Applications-Machine-Learning-Analytical-Chemistry/dp/9357043373/ref=sr_1_1?qid=1690791318&refinements=p_27%3AManish+Kumar+Thimmaraju&s=books&sr=1-1
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5	2nd International Black sea Modern scientific Research Congress	file:///C:/Users/BIPS/Downloads/YAHWEHCONFERENCEPAPERreleased%20(2).pdf
6	Current approaches in Drug Discovery	Amazon : https://www.amazon.in/dp/9395632828?ref=myi_title_dp Flipkart : https://www.flipkart.com/futuristic-trends-pharmacy-nursing/p/itm397b3483765df?pid=9789395632829 Google Books : https://books.google.co.in/books/about?id=1zPKEAAAQBAJ&redir_esc=y
7	Role of Machine Learning in Pharmaceutical Industry	https://www.amazon.in/Role-Machine-Learning-Pharmaceutical-Industry/dp/9355151098/ref=sr_1_2?qid=1690791318&refinements=p_27%3AManish+Kumar+Thimmaraju&s=books&sr=1-2
8	Emerging applications of bionanomaterials in medicine and drug delivery	https://www.sciencedirect.com/science/article/abs/pii/B978012821945600015V



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17	Practical Instrumental Analysis	https://www.amazon.in/Practical-Instrumental-Analysis-Manish-Manapally/dp/1535094214/ref=sr_1_4?qid=1690791318&refinements=p_27%3AManish+Kumar+Thimmaraju&s=books&sr=1-4



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18	Practical Instrumental Analysis-Pharm D	https://www.amazon.in/Practical-Instrumental-Analysis-practical-manual/dp/1987576136/ref=sr_1_3?qid=1690791318&refinements=p_27%3AMa nish+Kumar+Thimmaraju&s=books&sr=1-3
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APPLICATION OF MACHINE *Learning* IN ANALYTICAL CHEMISTRY

Dr. Manish Kumar Thimmaraju
Dr. Mohammed Asif Hussain
Dr. Arjun Goje

[https://www.amazon.in/Applications-Machine-Learning-Analytical-](https://www.amazon.in/Applications-Machine-Learning-Analytical-Chemistry/dp/9357043373/ref=sr_1_1?qid=1690791318&refinements=p_27%3AManish+Kumar+Thimmaraju&s=books)

[Chemistry/dp/9357043373/ref=sr_1_1?qid=1690791318&refinements=p_27%3AManish+Kumar+Thimmaraju&s=books](https://www.amazon.in/Applications-Machine-Learning-Analytical-Chemistry/dp/9357043373/ref=sr_1_1?qid=1690791318&refinements=p_27%3AManish+Kumar+Thimmaraju&s=books)

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info@bluerosepublishers.com

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Dr. Manish Kumar Thimmaraju pursued M.Pharm (2004-2006), Pharmaceutical Analysis as Specialization from Dr MGR Medical University. He obtained PhD in 2014 from Acharya Nagarjuna University. He received research grants from SERB, DST-NIMAT, TAS and TBAI. He published 52 scientific research papers in reputed national and international peer reviewed journals (Scopus & WOS). He is an elected Fellow of Young Academy of India (YAI) and Associate Fellow of Telangana Academy of Sciences (TAS-2019) and Andhra Pradesh Academy of Sciences (2018). To his credit he has 09 Patent grants (National & International) and authored 05 books. He is a life member of APTI, MAPB, SBTI, ISTE, IPA and IPGA. At present he is serving as HOD-Pharmaceutical Analysis at Balaji Institute of Pharmaceutical Sciences, Warangal, Telangana, India.



Dr. Mohammed Asif Hussain pursued his Master in Pharmacy (2004-2006), Pharmaceutics as specialization from Rajiv Gandhi University of Health Sciences, Bangalore, India. He has published 25 Scientific Research papers in reputed national and international peer reviewed journals (Scopus and WOS) and presented more than 15 abstracts in National and International Scientific Conferences in the Area of Pharmaceutics. He is a life member of Association of Pharmacy Teachers of India (APTI), Indian Pharmaceutical Association. At present Dr. Mohammed Asif Hussain is serving as Principal and Professor at Pathfinder Institute of Pharmacy Education and Research, Warngal, Telangana, Indian.



Dr. Arjun Goje pursued Master in Pharmacy 2006-2008, Pharmaceutics as Specialization from Rajeev Gandhi University Bangalore India. He obtained PhD in 2017 from National Institute of Medical Sciences Jaipur. He received travel grants from CSIR, DST, and he published 40 scientific research papers in reputed National and International peer reviewed journals and presented more than 20 abstracts in National and International scientific conferences. To his credit 4 patent grants. He is the life member of Association of Pharmacy Teachers of India (APTI). Dr. Arjun Goje is serving as Head of the Department of Pharmaceutics Tee gala Ram Reddy College of Pharmacy, Hyderabad, Telangana.



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Acceptance of Paper for Poster Presentation at 72nd Indian Pharmaceutical Congress.

Dear Dr.MANISH KUMAR THIMMARAJU,

We are pleased to inform you that your paper entitled "DEVELOPMENT AND VALIDATION OF HPLC METHOD FOR THE ESTIMATION OF LEVOFLOXACIN IN HUMAN PLASMA" has been accepted for presentation as "Poster No:F-94" in Poster Session at the 72nd Indian Pharmaceutical Congress.

As a presenter, you must be a registered delegate for the 72nd IPC. However, only the Abstracts of those presenters, who are registered by 25th December, 2022, will be published in the final abstract CD. You should have your registration badge at the poster venue in order to present the poster.

Registration Committee

For Registration details log into https://www.ipcnagpur.com/#/registration_committee

For registration and general information: <https://www.ipcnagpur.com/>

For scientific sessions/poster presentation related information:
Website: www.scientificipca.org; Email: scientific@ipcnagpur.com

Kindly have your membership details at the time of poster presentation or in case you have applied for membership and have not received the membership number as yet, you may have the Photostat copy of the membership payment receipt / DD raised for the purpose as proof.

Kindly bring a copy of this letter and photo ID for identification at the poster presentation. Your date of presentation will be displayed on the website (www.scientificipca.org) by 6th January, 2023.

It is also mandatory for the presenting author to submit the duly signed author declaration form at the time of poster presentation. The same is available along with this letter or it may be downloaded from the website (at downloads <http://www.scientificipca.org/downloads.php>) The letter of acceptance can also be downloaded by signing in on the website with the username and password provided at the time of registration for paper submission

The area provided for poster presentation will be about 0.95 meter (95 cm) wide by 1.2 meter height (120 cm). For more detail about poster specifications, kindly look into <http://www.scientificipca.org/posterspec.php>

Note: Poster presenter have to bring their necessary stationery (Adhesive tape, Pins etc.,) since there will not be any facility available in the venue.

We look forward to meet you at 72nd IPC.

Kind regards,

Dr.Roop K.Khar
Convener-SSS, IPCA

Dr.Brijesh G.Taksande
Member-SSS, IPCA

Dr.Dadasaheb M.Kokare
Chairman-Local SSC-IPC

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26.11.2022
Saturday / 15:30-18:00

SESSION-3 HALL-3
MODERATOR: Dr. Öğretim Üyesi Pelin BARAN

Africa:14:30-17:00/ Algeria: 13:30-16:00/ Australia: 23:30-01:00/ Azerbaijan: 16:30-19:00 Belarus:15:30-18:00 / Brazil:07:30-10:00 / China:20:30-23:00/ Ethiopia:15:30-18:00 / India: 18:00-20:30/Indonesia:19:30-22:00 Kyrgyzstan:18:30-21:00 /Kingdom of Eswatini:14:30-17:00/ Iran: 15:30-18:00 / Malaysia: 20:30/23:00/ Morocco: 12:30-15:00/Nigeria: 13:30-16:00/Pakistan: 17:30-20:00/ / Romania Serbia:13:30-16:00/ Tunisia:13:30-16:00/ Ukraine/14:30-17:00/ Vietnam: 19:30-22:00

AUTHORS	AFFILIATION	TOPIC TITLE
Garip Dala Fikret İpek	Dicle University	Mobilite Olan Dişlerde Diş Eti Çekilmesinin Serbest Diş Eti Greftiyle Tedavisi: Olgu Sunumu
Cafer ATAŞ Nur Irmak ERAKMAN Günseli GÜVEN POLAT	Sağlık Bilimleri University	Molar-Kesici Malformasyonlu Çocuk Hastanın Klinik-Radyografik Özellikleri Ve Tedavi Planlaması: Bir Olgu Sunumu
Cafer ATAŞ Nur Irmak ERAKMAN Günseli GÜVEN POLAT	Sağlık Bilimleri University	Adenoid Yüzlü Çocukların Ortodonti Ve Çocuk Diş Hekimliği Açısından Değerlendirilmesi
Manish Kumar Thimmaraju, Naveen Singh .T, Vanamala Mounika, Kotthapally Tejashwini Sharma	Balaji Institute of Pharmaceutical Sciences	Validated Uv Spectroscopic Method Of Zafirlukast
Trabelsi Wafa, Fouzaï Chaima, Bejaoui Safa, Chetoui Imen, Sami Mili, Soudani Nejla	University of Tunis El Manar	Exploring The Potential Toxic Effect Of Acrylamide Exposure On Fatty Acid Profiling And Histopathological Aspects Of Mactra Stultorum Gill's
Chaima Fouzaï, Wafa Trabelsi, Safa Bejaoui , Imene Chetoui, Nejla Soudani	University of Tunis El Manar	Oxidative Stress Impacts In Paracentrotus Lividus Exposed To Lambda-Cyhalothrin: Biochemical Responses
Dr. Öğretim Üyesi Pelin BARAN	Uşak University	Türkiye Endemiği Olan Papaver Pilsom Subsp. Spicatum (Papaveraceae)' Nin Antalya-Kemer/Tahtalı Dağ Populasyonu Üzerine Deskriptif Bir Araştırma
Lütfiye GENÇER	Cumhuriyet University	Chalcidoidea (Hymenoptera) Ve Adli Entomolojideki Önemi
SAKA, Sule Ajibola: Eze Ify, Uchenna:	Olabisi Onabanjo University	Herbal Medicine Use Among Older Patients With Chronic Diseases In Southwest Nigeria
Hatice Kübra KAPUCUOĞLU Nudem KAYA Serkan MARAL	Muş Alparslan University	Eczacı Ve Eczane Çalışanlarında Mesleki Tükenmişlik Düzeyi İle İş Stresi Arasındaki İlişki: Muş İli Örneği




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VALIDATED UV SPECTROSCOPIC METHOD OF ZAFIRLUKAST

Manish Kumar Thimmaraju ¹, Naveen Singh .T ¹, Vanamala Mounika ¹, Kotthapally Tejashwini Sharma ²

¹ Department of Pharmaceutical Analysis, Balaji Institute of Pharmaceutical Sciences

² Department of Pharmaceutical Quality Assurance, Balaji Institute of Pharmaceutical Sciences

Abstract:

A simple, new and advantageous UV spectroscopic method for Zafirlukast was estimated in bulk formulations. Zafirlukast was estimated at 240 nm in 25% acetonitrile. Limits for range of linearity ($2-10 \mu\text{g/ml}^{-1}$) ($r^2 = 0.078x + 0.046$; $r^2 = 0.999$), Molar absorptivity noticed to be ($5.7 \times 10^5 \text{ mol}^{-1} \text{ cm}^{-1}$) in 25% ACN. According to ICH guidelines and USP this method was tested and validated for various validation parameters. Range for quantitation limits was noticed as $0.0740 \mu\text{g/ml}^{-1}$ and $0.0244 \mu\text{g/ml}$ in 25% ACN, respectively. By demonstrating the results method was found to be precise, reproducible (related standard deviation 2%) and accurate.

Keywords: Zafirlukast, Acetonitrile, UV Spectrophotometry, Validation



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December 16-18, 2022
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17.12.2022

Session-1 / Hall-6

Ankara Time: 10⁰⁰-12⁰⁰

HEAD OF SESSION: Prof. Dr. Muhammad FAISAL

TOPIC TITLE	AUTHORS	AFFILIATION
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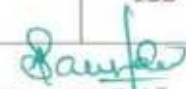


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QUANTIFICATION OF FOSAMPRENAVIR IN SPIKED HUMAN PLASMA USING LIQUID CHROMATOGRAPHY-ELECTROSPRAY IONIZATION-TANDEM MASS SPECTROPHOTOMETRY-APPLICATION TO PHARMACOKINETIC STUDY**Manish Kumar Thimmaraju¹, Sayyed Sameena¹, Gandham Bhavana¹, Reddy Rajesh¹**

Department of Pharmaceutical Analysis,
Balaji Institute of Pharmaceutical Sciences
Laknepally, Narsampet, Warangal, Telangana, India

Abstract

Fosamprenavir (FSV) is used for the treatment of HIV infections. It is a prodrug of the protease inhibitor and antiretroviral drug amprenavir.

Aim

This research work described about the estimation of FSV in spiked human plasma using electrospray ionization, LC-MS/MS technique, and its application to pharmacokinetic study in rabbits.

Materials and methods

Liquid-liquid extraction technique was used for the extraction of FSV in spiked human plasma. The separation was achieved using ZORBAX SB-C18 column with 4.6 mm internal diameter with 5 μ m particle size using acetonitrile: 5 mmol/l ammonium acetate in water (85: 15, v/v) as a mobile phase. Positive ion mode was selected for the product ion mass spectra, m/z 585.6–418.2 for FSV and m/z 589.2–469.1 for FSV-deuterated (internal standard), The US Food and Drug Administration guidelines were adopted for successful validation of the developed method.

Results

The retention time of FSV was found to be 1.51 min, for FSV-deuterated it was 1.62 min, with a runtime of 2.5 min. The present method exhibits excellent intraday and interday accuracy with %nominal 95–98.4% and precision percentage coefficient variation up to 3% in all quality control (QC) levels. The developed method demonstrated excellent matrix and analyte selectivity (%interference=0), matrix effect (matrix factor 2.09 at lower quantitation limit and 1.14 at high QC level) and satisfactory stability study results in all types (%nominal 94.03–100.80%). The linearity range was found to be 0.510–200.185 ng/ml with a correlation coefficient (r^2) of 0.998. The calculated accuracy and precision values in the ruggedness study were within 15–20% in all QC levels. The percentage coefficient variation of the pharmacokinetic study on rabbit plasma samples was also conducted and the parameters of FSV showed T_{max} of 2 h and the mean C_{max} , $AUC_{0 \rightarrow t}$ and $AUC_{0 \rightarrow \infty}$ for test formulation were 98.6, 351.3, and 354.9, respectively.

Conclusion

This method was successfully optimized, validated, and applied favorable for the pharmacokinetic study of marketed formulation in rabbit blood samples in a single oral human-equivalent dose. The applicability of the developed method undoubtedly can further extend during preclinical and clinical trials.

Keywords: fosamprenavir, LC-MS/MS, method development, pharmacokinetics



DESALINATION OF WATER

Manish Kumar Thimmaraju ¹, Parbhesh Musaraf Alom ¹, Sahabuddin Ahmed
¹, Fulchan Ali Khan ¹, Firdasur Rahman ¹

Department of Pharmaceutical Analysis,
Balaji Institute of Pharmaceutical Sciences
Laknepally, Narsampet, Warangal, Telangana, India

Abstract

Water is very essential for all living beings. It covers nearly 70% of earth's surface. Even though the major portion of earth is covered by water, there is severe shortage of drinking water in most of the countries across the world. Safe drinking water is vital for all forms of life though it does not provide any calories. Desalination of sea water appears as a solution for this problem. Advanced desalination technologies that are applied to seawater and brackish water prove to be effective alternatives in a variety of situations. This study mainly focuses on upcoming trends in modern desalination technologies and emphasizing the options offered by them. Desalination is a technique where the excess salts are removed from sea water or brackish water converting it into safe potable or usable water. Desalination methods are categorized into thermal processes and membrane processes. In this chapter we discuss about different thermal processes like multistage flash distillation, multiple effect distillation, vapour compression evaporation, cogeneration and solar water desalination. We also discuss about various categories of membrane processes like reverse osmosis, electro dialysis and membrane distillation methods. This chapter also concentrates on advantages and disadvantages and economical parameters involved in each of these methods.

Key words: Desalination, Emphasizing, Distillation, Osmosis, Dialysis




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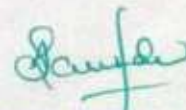


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CURRENT APPROACHES IN DRUG DISCOVERY

Abstract

Computer-Aided Drug Design (CADD) evolved as an efficient method for finding prospective lead compounds and facilitating the creation of potential medications for a wide variety of ailments. Numerous computer methods are currently employed to find potential lead compounds from vast compound libraries. The applications of the CADD technique to drug development are advancing constantly. Recent trends in drug design emphasize the rational design of effective therapies with multi-targeting effects, increased efficacy, and fewer side effects, particularly in terms of toxicity. In this chapter, we present a brief overview of CADD and describe structure-based drug design (SBDD) and ligand-based drug design (LBDD), as well as their applications in identifying viable therapeutic candidates.

Keywords: Computer aided drug design, Structure based drug design, and Ligand based drug design

Authors

Divya Pingili

Sri Venkateswara College of Pharmacy
Madhapur, Hyderabad, Telangana India

Manish Kumar Thimmaraju

Balaji Institute of Pharmaceutical Sciences,
Narsampet
Warangal, Telangana, India

Sridhar Babu Gummadi

Sri Shivani College of Pharmacy
Warangal, Telangana, India



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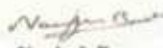
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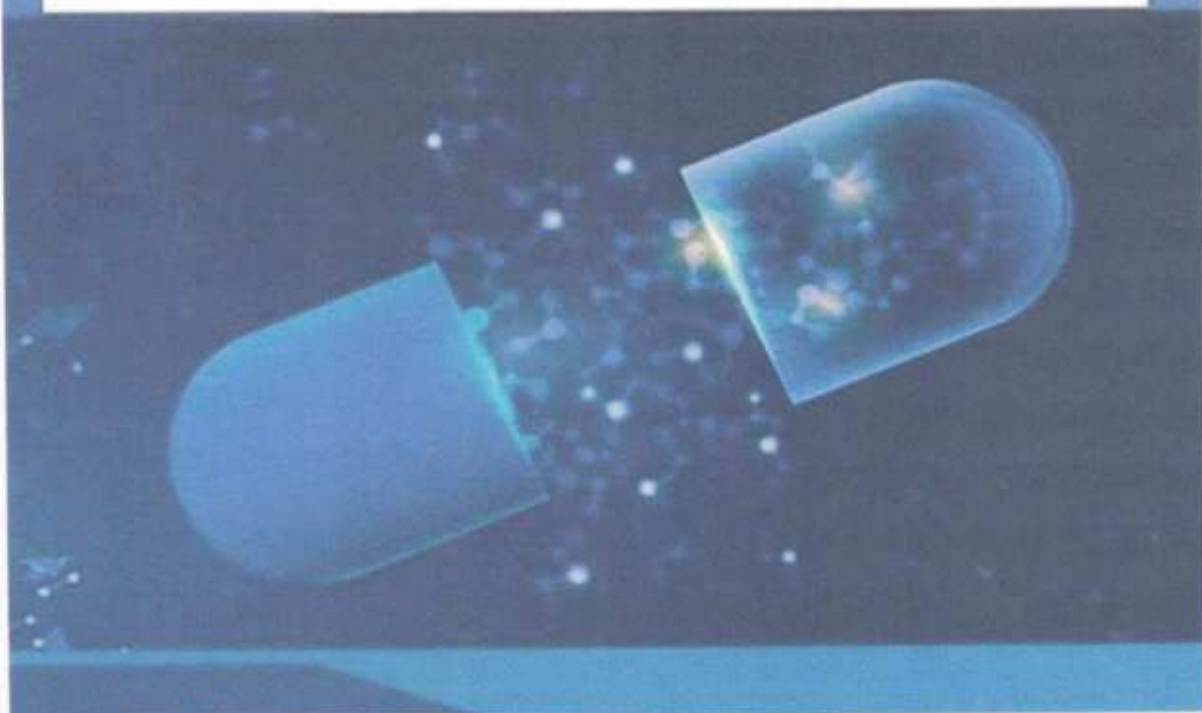

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ROLE OF MACHINE LEARNING IN PHARMACEUTICAL INDUSTRY

Dr. Manish Kumar Thimmaraju
Dr. Anil Kumar Garige
Dr. Vijitha Chandupatla
Dr. Basawaraju Macha



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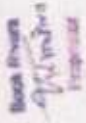
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Bionanotechnology : Emerging Applications of Bionanomaterials

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Chapter 5 - Emerging applications of bionanomaterials in medicine and drug delivery

Dalapathi Gugulothu¹, Dharmendra Kumar Khatri²

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Abstract

Depends upon the nanostructures the properties of the bionanomaterials differ and are exploited for assorted applications in the field of medicine and drug delivery. Its application can be appraised, as it includes the materials to be designed at the atomic and molecular level. Owing to the advantage of their size, bionanomaterials have been exposed to be vigorous drug delivery systems and may be useful for encapsulating drugs and enabling more precise targeting with a controlled release. The bionanomaterials are applied for the treatment of various diseases includes; cancer, tuberculosis, infectious diseases, diabetes, inflammatory bowel disease, HIV, CNS disorders, antimicrobial, antioxidants, etc. Inorganic, Carbon, Polymeric, Lipid, and others are commonly studied and can be considered for the site-specific delivery of drugs particularly those drugs which have poor solubility and absorption.



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Bioimaging; Cellulose nanocrystals; Inclusion bodies; Lipid hybrid particles; Multidrug resistance; Multifunctional metal nanoparticles; Nanodiamond

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Author: Manish Kumar Thimmaraju

Department of Pharmaceutical Analysis, Balaji Institute of Pharmaceutical sciences, Laknepally,
Telangana 506331, India.

Manuscript Title: Design and Comparison of Transfer Learning for Dental Caries Detection

Paper ID : ICECAA255

Dear Authors,

On behalf of the Conference committee, I would like to congratulate you on your article to the ICECAA 2022 IEEE Conference, which will be held from 13-15, October 2022 at Gnanamani College of Technology, Namakkal, Tamil Nadu, India. You have been selected to deliver your oral presentation at the International Conference on Edge Computing and Applications.

As a result of the review and results, we are pleased inform that you can now submit the full-length paper for inclusion into the IEEE Xplore ICECAA proceedings. We appreciate if you could send the final version of your research paper at your earliest convenience, in order to ensure the timely publication. When submitting your final paper, please highlight the changes made according to the review comments.

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Design and Comparison of Transfer Learning for Dental Caries Detection

Pranjit Das¹, Dhana Sony. J², Manish Kumar Thimmaraju³, Ahalya N⁴, Harishchander Anandaram⁵, Ashok Kumar⁶,

¹Department of Computer Science and Engineering, Koneru Lakshmaiah Education Foundation, K L University, Vaddeswaram, Andhra Pradesh 522302, India 91pranjitdas@gmail.com

²Department of Biomedical Engineering, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Chennai 600062, Tamil Nadu, India.

³Department of Pharmaceutical Analysis, Balaji Institute of Pharmaceutical sciences, Laknepally, Telangana 506331, India

⁴Department of Biotechnology, MS Ramaiah Institute of Technology, Bengaluru, Karnataka 560054, India

⁵Centre for Excellence in Computational Engineering and Networking, Amrita Vishwa Vidyapeetham, Coimbatore, Tamil Nadu 641112, India

⁶Department of Computer Science, Banasthali Vidyapith, Banasthali, Rajasthan 304022, India

Abstract— Dental caries is one of the most serious dental health issues affecting people of all ages. It is an infectious disease that degrades tooth structure because of dental cavities. Due to constraints such as the enormous amount of money and time required, Artificial Intelligence (AI) has been used in medical research in the field of oral healthcare. Deep learning (DL), an AI branch, is currently a growing field that is widely used in dentistry. DL is a solid foundation for dentists to give better, more efficient care to patients while also saving time. AI supports dentists in meeting patients' expectations while also ensuring excellent treatment and better oral health care. Furthermore, DL can predict clinical case failures and propose dependable therapies. This strategy aids in lowering morbidity rates and improving the quality of dental care in the population. Using transfer learning techniques, this study aims to automate the detection of dental cavities. The two transfer learning algorithms used are ResNet50 and MobileNet. 395 normal and 395 caries dental images from Kaggle are used to develop the transfer learning model. The optimal model is determined by examining both transfer learning models. The MobileNet gives the highest accuracy when compared with ResNet50. The accuracy rate achieved by the MobileNet model is 96.12%.

Keywords— Dental, Images, Train, Transfer Learning Model, Accuracy, Loss.

I. INTRODUCTION

Dental caries is a common, long-lasting infection that affects most teenagers and older people [1]. Tooth decay is produced by microorganisms. Dental caries is more common in people who eat a lot of glucose, sugar, and fructose. The previous method makes an acid that breaks down the minerals on the surface of the teeth. Caries happens whenever the rate of losing minerals is lower than the

potential of breaking down [2]. Most researchers have shown that persons who are economically and socially underprivileged, particularly in minority communities with low incomes, individuals with less education, and disabled persons, are more likely to get dental caries. Moreover, multiple epidemiological and clinical studies have demonstrated that teeth loss because of oral disease, namely dental caries, is connected with poor dietary modifications and risk indicators for heart problems and mental retardation [3]. When dental assessments are expensive and not covered by health insurance in many middle and lower-income nations, the number of people who go to dental hospitals and clinics for exams may be much lower [4]. Despite being preventable and curable, dental cavities are a major source of dental pain and tooth loss. Comprehensive and initial identification of dental caries may be necessary for prompt and effective treatment.

Several retention and restoration therapies for dental caries treatment are introduced and refined with great success during the past few decades. Due to the varied morphological structure of the tooth and the geometries, diagnostic techniques for identifying dental caries have not yet advanced much. The AI and DL have recently exhibited good performance in medical image analysis. Previously, DL algorithms have exhibited extremely high accuracy and efficiency in cancer diagnosis and classification, with promising therapeutic implications [5,6]. In dentistry, however, there were few investigations focused on DL architectures, and exploration into the identification and treatment of dental caries has also been sparse [7]. Consequently, the purpose of this research was to examine the efficiency of DL-based transfer learning algorithms for detecting and diagnosing dental caries from images of



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Acceptance Letter

Author: Manish Kumar Thimmaraju,

Department of Pharmaceutical Analysis, Balaji Institute of Pharmaceutical sciences, Laknepally,
Telangana 506331, India.

Manuscript Title : Development of a website for malarial detection using Deep Learning

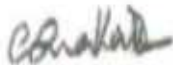
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Development of a Website for Malarial Detection using Deep Learning

B. Uma Maheswari¹, Manish Kumar Thimmaraju², V Jeeva³, Mahendra Pratap Swain⁴, Sandeep Kumar Singh⁵, Ashok Kumar⁶,

¹Department of Computer Science and Engineering, St. Joseph's College of Engineering, Chennai, Tamil Nadu 600119, India mahespa2002@gmail.com

²Department of Pharmaceutical Analysis, Balaji Institute of Pharmaceutical sciences, Laknepally, Telangana 506331, India

³Department of English, S.A. Engineering College, Chennai, Tamil Nadu 600077, India

^{4&5}Department of Pharmaceutical Sciences and Technology, Birla Institute of Technology, Mesra, Jharkhand 835215, India

⁶Department of Computer Science, Banasthali Vidyapith, Banasthali, Rajasthan 304022, India

Abstract— Malaria is a bacterial disease which is commonly caused by mosquitoes. In India, approximately, 7500 people have died due to malaria. The screening methods for malaria include the analysis of blood samples. This research aims the development a website that is capable of predicting malaria by analyzing the images of blood cells. For this purpose, images of blood cells are collected as a dataset from Kaggle. Both healthy and blood cells infected with malaria are included in this dataset. Next, the dataset's photos are selected for training, testing, and validation. The picked pictures are then scaled down to a specific size. With the help of the Convolutional Neural Network (CNN), a Deep Learning (DL) model is created. The preprocessed photos are then used to train this model. Model validation follows the training. The training and validation results are tallied and examined. Next, the model's accuracy and loss are evaluated. The highest accuracy of the model developed is 9% which was attained during the training. The model also produced the lowest loss value of 13% during the final epoch of the validation process. The model is then tested if the findings are satisfactory. The tested model is then deployed on a website. This website can be used as a pre-screening test for malaria in times when a person cannot reach out to the nearest doctor. This website can also be updated and converted as a software application in the future.

Keywords— Disease, Mosquito, Deep Learning, Data, Accuracy, Website

I. INTRODUCTION

Malaria is a common bacterial disease during rainy seasons and when a person is exposed to a lot of mosquito bites. These situations cannot be avoided in some cases. People who live in rural areas are prone to malaria and

sometimes they neglect it as a normal fever or other such symptoms. Malaria is caused by the injection of a bacteria named Plasmodium Parasite. This parasite is normally present in mosquitoes. However, malaria can also be caused by the errors occurring during blood transfusion such as the usage of used needles and transfusion of blood without proper screening. The symptoms of malaria include shivering and chills. As the production of mosquitoes is quite high during the rainy season, people are more prone to malaria during this season. Thus, it is easier for people to misinterpret the initial symptoms of malaria as the symptoms caused due to climate change. This negligence can be fatal at times. Followed by chills, the person will also have symptoms like heavy fever and sweating. But when the bacteria reach that point, it may be difficult for simple treatments to cure malaria. Malaria can be predicted simply by analyzing the blood cells. This analysis has to be done in the initial stages when the person starts to feel chills. This study aims in developing a website that can analyze the images of blood cells and predict whether the person is affected by malaria or not. This is done by the usage of a DL model. The upcoming chapters include a detailed description of the construction of this DL model and the development of the website.

II. LITERATURE SURVEY

Detection of disorders and diseases is no new to the field of technology. For example, researchers have used the technology of feature selection and classification to detect stress. The study [1] on stress detection was done using functional near-infrared spectroscopy. For this process tests like the Trier Social Stress Test and the Balloon Analog, Risk Analysis is done to collect the data for training and analysis. The model developed in this study provided an





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Structural Multifunctional Nanofibers and Their Emerging Applications

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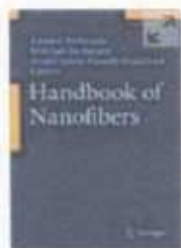
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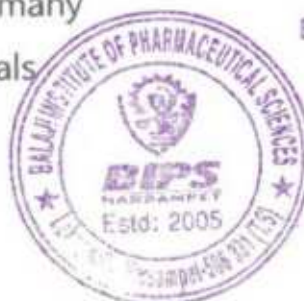
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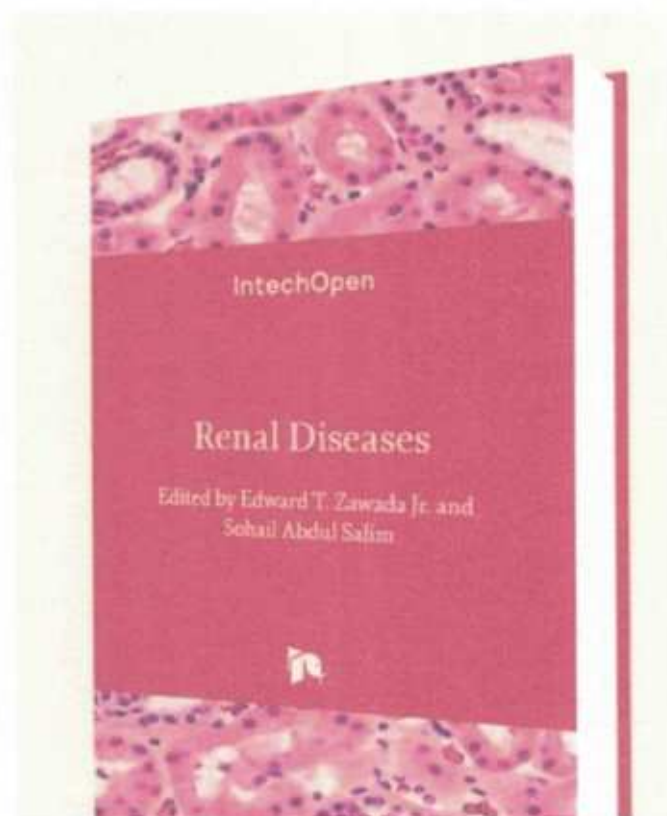
Abstract

Fabrication of nanofibers has received increasing attention due to their unique properties and wide range of applications in energy production, energy storage, environmental protection and improvement, healthcare, and many more. Nanofibers provide a good material system that can improve the electrical, optical, thermal, and mechanical properties of many types of bulk materials. To date, various materials



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Causes and Pathophysiology of Nephrotic Syndrome in Childhood

WRITTEN BY

Nagaraju Vallepu, Saikiran Velpula, Bharath Kumar Dasari, Manish Kumar Thimmaraju, Sridhar Babu Gummadi, Neeraja Yelugam and Supraja Jannu

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Causes and Pathophysiology of Nephrotic Syndrome in Childhood

*Nagaraju Vallepu, Saikiran Velpula, Bharath Kumar Dasari,
Manish Kumar Thimmaraju, Sridhar Babu Gummadi,
Neeraja Yelugam and Supraja Jannu*

Abstract

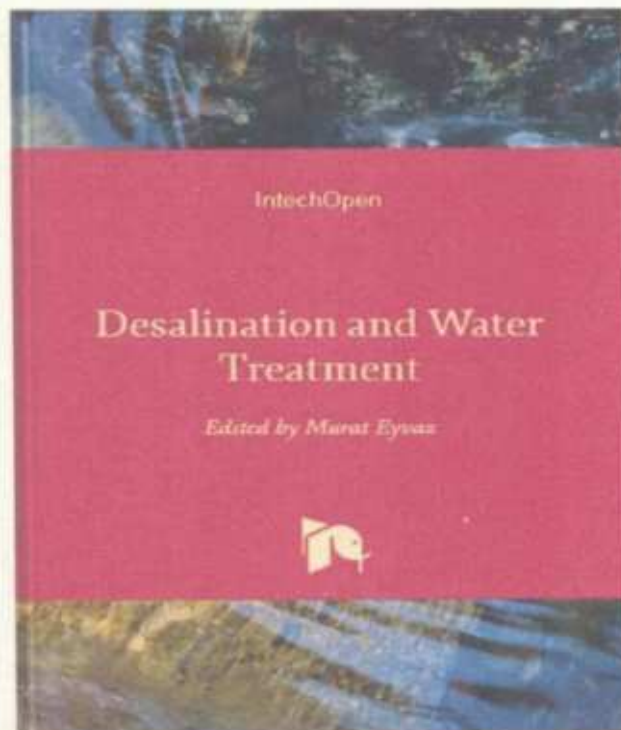
Nephrotic syndrome is a general type of kidney disease seen in children. In the past, Roelans is credited with the first clinical description of nephrotic syndrome in the late fifteenth century. Nephrotic syndrome is appropriate to excessive hypoalbuminemia, edema, and proteinuria may be hyperlipidemia also present in some cases. Periorbital swelling with or without edema of the body is observed in first starting little period of life, frequently show in children with this condition. Nephrotic syndrome starts develops due functional and structural changes in the GFB, consequential difficulty to control protein in the urine. Nephrotic syndrome possibly causes due to some of glomerular diseases and systemic diseases, but significantly the mostly in childhood is unknown nephrotic syndrome. The first significant improvement with introduction of sulfonamides and then penicillin was seen in 1939. The beginning of adrenocorticotrophic hormone and cortisone greater decrease in mortality (to 9%), in the 1950s it was noted to happen in association with spectacular declaration of proteinuria. Etiology of nephrotic syndrome is also age reliant. Most cases reported in the first 3 months of life are referred to as congenital nephrotic syndrome (CNS) and are due to genetic diseases.

Keywords: nephrotic syndrome, hypoalbuminemia, proteinuria, glomerular filtration barrier, congenital nephrotic syndrome

1. Introduction

Nephrotic syndrome is a general type of kidney disease seen in children. Historically, Roelans is credited with the first clinical description of nephrotic syndrome in the late fifteenth century. Nephrotic syndrome is appropriate to excessive hypoalbuminemia, proteinuria, and edema, although additional clinical hyperlipidemia is also usually present. The beginning of adrenocorticotrophic hormone and cortisone in the 1950s contributed to an even greater decrease in mortality (to 9%), which was noted to occur in association with dramatic resolution of proteinuria.





Desalination of Water

WRITTEN BY

Manish Thimmaraju

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Manish Thimmaraju, Divya Sreepada,
Gummadi Sridhar Babu, Bharath Kumar Dasari,
Sai Kiran Velpula and Nagaraju Vallepu

Additional information is available at the end of the chapter

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Abstract

Water is very essential for all living beings. It covers nearly 70% of earth's surface. Even though the major portion of earth is covered by water, there is severe shortage of drinking water in most of the countries across the world. Safe drinking water is vital for all forms of life though it does not provide any calories. Desalination of sea water appears as a solution for this problem. Advanced desalination technologies that are applied to seawater and brackish water prove to be effective alternatives in a variety of situations. This study mainly focuses on upcoming trends in modern desalination technologies and emphasizing the options offered by them. Desalination is a technique where the excess salts are removed from sea water or brackish water converting it into safe potable or usable water. Desalination methods are categorized into thermal processes and membrane processes. In this chapter we discuss about different thermal processes like multistage flash distillation, multiple effect distillation, vapour compression evaporation, cogeneration and solar water desalination. We also discuss about various categories of membrane processes like reverse osmosis, electro dialysis and membrane distillation methods. This chapter also concentrates on advantages and disadvantages and economical parameters involved in each of these methods.

Keywords: desalination, sea water, potable water, desalination techniques

1. Introduction

Water is very essential for life. It is one of the most abundant resources of the earth, covering about 3/4th of earth's surface. Though it covers earth's major portion yet there is severe shortage of potable water in many countries around the world mainly developing

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Practical Instrumental Analysis

Dr. MANISH KUMAR THIMMARAJU

M.Pharm, Ph.D

Edited By

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Laknepally (V), Narsampet (M)
Warangal (Dt) - 503 331 (T.S.)

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I express my thanks to **Mr. Pavan Kumar Thimmaraju**, who was responsible for proof reading of the manuscript, I owe great indebtedness.

The initiation and completion of this work was speeded up due to the deep concern and regular monitoring done by **Dr. J. Venkateswar Rao**, Principal, Talla Padmavathi College of Pharmacy, Warangal.

-Author

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Practical Instrumental Analysis

Pharm D

Dr Manish Thimmaraju

This Practical Manual is designed to meet the requirement as per PCI syllabus covering various Instrumental methods of analysis for Pharm D Third year students.

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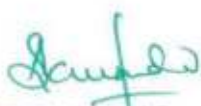
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Practical Instrumental Analysis: practical manual

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Dr Manish Kumar Thimmaraju (Author)



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Controlled Release Society

Asia-Pacific Region Chapters

17 August 2018

LETTER OF ACCEPTANCE TO PRESENT AT THE 1st CONTROLLED RELEASE ASIA (CRA) MEETING

Dear Dr Manish Kumar Thimmaraju

Thank you for submitting an abstract for the first Controlled Release Asia (CRA) meeting, which will be held on the 24th and 25th of September 2018 in Singapore.

We are delighted to inform you that your abstract titled "Formulation and evaluation of Cytotoxic potential of Metronidazole loaded Poloxamer 407 Hydrogel in SCC-29 Cell lines" has been accepted for a poster presentation at the conference.

If you are unable to attend the conference, it is important that you inform us as soon as possible.

We look forward to your participation in the meeting.

Best regards,

Dr Malinda Salim (Secretary-Controlled Release Asia Meeting)

Drug Delivery, Disposition and Dynamics

Monash Institute of Pharmaceutical Sciences

Monash University (Parkville Campus)

381 Royal Parade, Parkville

Victoria 3052, Australia



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Welcome to the

1st Controlled Release Asia Meeting (CRA)

This meeting is the first Controlled Release Asia meeting, co-organised and supported by CoRE-NET and regional Chapters of the Controlled Release Society (CRS). The meeting aims to bring together controlled release and delivery scientists across all fields of delivery science and technology. Scientists and industry representatives from the consumer products, agricultural delivery, fragrance, coatings and drug delivery fields to name a few have come together to share new developments in their field and to enhance their networks.

EVENT PROGRAM

Day 1 – Monday, 24th September 2018

8.00am – 5.00pm

Venue: Breakthrough Theatre, Level 4, Matrix Building, Biopolis

Time	Program
08:00 – 09:00	Registration
09:00 – 10:00	Plenary 1 - Pauline Li Amphiphilic Core-Shell Polymeric and Hydride Nanoparticles in Biological Applications <i>Chair: Alex van Herk</i>
10:00 – 10:30	Coffee break, posters and networking
10:30 – 12:30	Presentations
12:30 – 13:30	Lunch break, posters and networking
13:30 – 15:00	Presentations
15:00 – 15:30	Coffee break, posters and networking
15:30 – 17:00	Presentations

Day 2 – Tuesday, 25th September 2018

8.00am – 5.00pm

Venue: Breakthrough Theatre, Level 4, Matrix Building, Biopolis

Time	Program
08:00 – 08:30	Registration
08:30 – 09:30	Plenary 2 - Anna Schwendeman Design of synthetic high density lipoproteins for drug and personalized neoantigen vaccine delivery <i>Chair: Ben Boyd</i>
09:30 – 10:00	Coffee break, posters and networking
10:00 – 12:00	Presentations
12:00 – 13:00	Lunch break, posters and networking
13:00 – 14:30	Presentations
14:30 – 15:00	Coffee break, posters and networking
15:00 – 16:30	Presentations
16:30 – 17:00	Student Posters on the Podium, Prize awards and closing remarks – Breakthrough Theatre



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WIFI Network – ASTAR-Guest



Organising Committee:

Alexander van Herk
Institute of Chemistry and Engineering Sciences (ICES) (Co-Chair)

Ben Boyd
Monash University (Co-Chair)

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Malinda Salim
Monash University

Brendan Burkett
Institute of Chemistry and Engineering Sciences (ICES)

1ST CONTROLLED RELEASE ASIA MEETING

Linking industry and academia in Controlled
Release Science and Technologies in the
Asia-Pacific Region

24-25 SEPT 2018
SINGAPORE

Hosted by:



Rajiv Gandhi Institute of Pharmaceutical Sciences
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Warangal (Dr) - 506 331 (T.S.)



No.	Name	Poster Title
P20	Mitali H. Patel	Preparation and optimization of lipid based drug delivery system of Asenapine maleate
P21	Zeel Naik	Assessment of drug interactions of chemotherapeutic agents in oncology department of quaternary care hospital
P22	Celine Lemoine	Cationic microparticle carrier system as adjuvant approach for pandemic influenza vaccines; proof-of-principle with adsorbed whole inactivated H5N1 influenza.
P23	Chang Hee Min	Development of enteric coated MCM-48 nanoparticle for oral vaccine delivery
P24	Mohammad Arafat	Development of a colorectal stent delivery system for anticancer drugs
P25	Jia-You Fang	The combination of oxacillin and cationic nanostructured lipid carriers for eradicating MRSA in skin
P26	Zih-Chan Lin	Cutaneous delivery of anthranilate derivatives for inhibiting neutrophilic inflammation in psoriasis-like lesion
P27	Lin Cheng-Yu	Combined loading of cilomilast and oleic acid in lipid nanocarriers for synergistic inhibition of psoriasis-like lesion
P28	Oliver Hedge	A digestion/permeation model based on artificial membranes for studies of performance of lipid-based formulations
P29	Yin Hui	Development of hydrophilic microcapsules with high loading menthol for food applications
P30	Dalapathi Gugulothu	Exploring various natural mucilages as a pharmaceutical additives in advanced drug delivery systems
P31	Wanachat Chaiyasan	Development of butterfly pea flower extract-loaded chitosan nanoparticles for oral administration
P32	Manish Kumar Thimmaraju	Formulation, evaluation and cytotoxic potential of Metronidazole Loaded Poloxamer 407 hydrogel in SCC-29 Cell Lines
P33	Srisagul Sungthongjeen	Development and evaluation of multi-layer Films for effervescent floating tablets
P34	Pradeep Kumar	Dendrimer-based drug delivery system- focus on Indian Visceral Leishmaniasis
P35	Satyanarayan Pattnaik	Fabrication and optimization of process variables of aceclofenac nanocrystals for improved dissolution

No.	Name	Poster Title
P36	Sagar Bhimaji Dhole	Anti-angiogenic liposomal formulation for pulmonary hypertension- A QbD Approach
P37	Chelsea Thorn	Infection responsive delivery of a glycoside hydrolase and antibiotic combination
P38	Wantida Chaiyana	Physical stability enhancement of cocooextract by W/O/W Nanoemulsion
P39	Suvimol Somwongin	Development of nano delivery systems containing bee venom for cosmetic/cosmeceutical purposes
P40	Ju-Yen Fu	Evaluation of tocotrienol nano-vesicles on reconstructed human skin model
P41	Saji Maghrebi	Development and in-vitro characterization of novel PLGA nanoparticle-Lipid Hybrid (PLH) microparticles for pulmonary delivery of rifampicin
P42	Natnaree Laothaweerungsawat	Chemical compositions, antioxidant and anti-ageing activities of essential oils from Thai highland plants
P43	Noorazwani Zainol	In-vitro digestion study of spinach lipid extract in o/w emulsion to control lipolysis
P44	Ronak Subodhkumar Bhuptani	Starch microsponges for enhanced retention and efficacy of topical sunscreens
P45	Tran The Thien	Dry powder inhaler of ciprofloxacin nanoplex as a new therapeutic avenue for bronchiectasis
P46	Suria Ramli	Effect of limonene on the Oleic Acid-based Microemulsion
P47	Heena V. Maithania	Buparvaquone solid lipid nanoparticles for targeted delivery in theileriosis
P48	Doryn Tan	Storage stability of thermo-responsive chitosan hydrogel
P49	Chanun Punyoyai	Antioxidant and anti-acne activities of Senna siamea extract
P50	Adeel Masood Butt	Doxorubicin and siRNA co-delivery for enhanced efficacy against MDR tumors
P51	Sitthithon Ousamanee	TiO2 mesoporous film opportunity for antibiotic coated implants
P52	Shankaraiah Puligilla	Curcumin enhance the intestinal transport of vinblastine by insitu permeability and inhibition of P-glycoprotein & CYP3A4 in rats
P53	Shariza Sahudin	Self-assembled chitosan nanoparticles for improved percutaneous delivery of cosmetic actives
P54	Piangpetch Tanngoen	Film-forming gels containing alpha-mangostin; physicochemical characterization and antibacterial activity



Formulation, Evaluation and Cytotoxic potential of Metronidazole Loaded Poloxamer 407 hydrogel in SCC-29 Cell Lines

Cell Lines

Manish Kumar Thimmaraju¹, Vandana Pamulaparthi²,

^{1,2} Department of Pharmaceutical Analysis, Central Analytical Laboratory,
Balaji Institute of Pharmaceutical Sciences, Narsampet, Warangal, Telangana, India.

ABSTRACT SUMMARY

The present research work was planned to formulate poloxamer 407 based hydrogel formulations of metronidazole and the evaluation of various parameters like swelling behavior, drug PH stability, *in vitro* and *in vivo* drug release and *in vitro* cytotoxic activity. Two different concentrations of metronidazole hydrogel formulations were prepared. Hydrogel formulation F1 showed improved percentage control growth when compared to F2 hydrogel formulation and metronidazole alone.

INTRODUCTION

Metronidazole (MT) which is chemically 5 nitroimidazole derivatives with the molecular weight of 171.156, gm/mol and with a molecular formula C₆H₉N₃O₃. It is used for the treatment of Vaginitis, Amebiasis, giardiasis, trichomonas infections and several anaerobic bacterial infections. These hydrogels have been characterized by their ability to carry a significant amount of drug. They are also, non toxic biodegradable and stable, therefore suitable for uses in controlled release formulations.

Extensive review of literature also revealed that till there was no hydrogel formulation of MT has been tested for its cytotoxic property, therefore in this present study we compared the cytotoxic property of MT and MT and its hydrogel formulations to investigate drug released from the prepared hydrogel show its cytotoxic property.

EXPERIMENTAL METHODS

Poloxamer-407, Water purified by reverse osmosis, MilliQ, USA and further filtered by 0.22 µm membrane filter. HPLC grade methanol Metronidazole (99.41% purity).

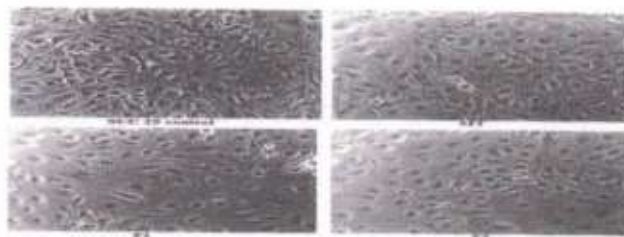
Preparation of Metronidazole loaded Poloxamer 407 hydrogel-Metronidazole loaded hydrogel formulations (F1 and F2) were formulated by dissolving 150 mg poloxamer 407 in Millipore water. After hydrogel formulation of metronidazole following evaluation for various parameters were carried out like, **HPLC Analytical method-** The concentration of MT in hydrogel was determined using developed validated analytical method. **Study of Swelling behavior of hydrogels in Pseudo Extra Cellular Fluid (PECF)-** Prepared hydrogels (F1 and F2) were investigated of their swelling properties¹² in PECF solution. **Stability study of MT and hydrogel at different pH-** By using various pH (3.5, 5.5 and 6.8), stability study was conducted for the prepared hydrogels. **In vitro release of MT from hydrogels-** The released MT was determined using HPLC analytical method. **Determination of bioavailability of MT loaded Hydrogel formulations-** the blood samples and the samples were subjected to protein precipitation and quantity was estimated using validated HPLC method.

Invitro cytotoxicity study- To investigate the cytotoxic activity the SCC 29 cancer cell lines were used.

RESULTS AND DISCUSSION

Calibration data of the metronidazole in selected solvent system

Concentration(mcg/ml)	Peak area(mean)	%RSD
0.1	68005	1.21
0.5	344493	0.73
1	691833	0.36
3	2065511	0.64
5	3366894	0.59
8	5600710	0.72
12	8351507	0.62
15	10283225	0.33



The SCC-29 colon cancer cell lines treated with MT and hydrogel formulations (F1-F2)

CONCLUSION

Rely on empirical evidences; the present study confirmed that prepared metronidazole hydrogel formulations have showed better bioavailability and P^H stability. Among two formulations F1 has shown little better cytotoxicity over F2 formulation when compared to metronidazole alone. Hence metronidazole loaded hydrogel formulations can be considered to be a promising system for the delivery of metronidazole for cytotoxic potential.

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- Mayol L, Quaglia F, Borzacchiello A, Ambrosio L, Rotonda ML. A novel poloxamers/hyaluronic acid in situ forming hydrogel for drug delivery: rheological, mucoadhesive and in vitro release properties. *Eur J Pharm Biopharm.* 2008; 70(1):199-206.
- Irene Tsina, Frances Chu, Martin Kaloostian, Marian Pettibone & Anne Wu. HPLC Method for the Determination of Metronidazole in Human Plasma. *Journal of liquid chromatography and related technologies.* 1996, 19(6). 957-967

Acknowledgement:

Authors are thankful to management of Balaji Institute of Pharmaceutical Sciences for providing research facilities



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Formulation, Evaluation and Cytotoxic Potential of Metronidazole Loaded Poloxamer 407 Hydrogel in SCC-29 Cell Lines

Manish Kumar Thimmaraju¹, Vandana Pamulaparth², N. Raghunandan³

^{1,2,3} Department of Pharmaceutical Analysis, Central Analytical Laboratory,
Balaji Institute of Pharmaceutical Sciences, Narsampet, Warangal,
Telangana, India

Abstract

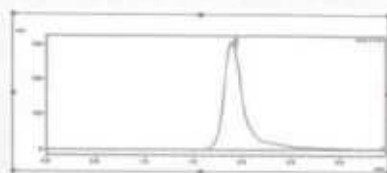
The present research work was planned to formulate poloxamer 407 based hydrogel formulations of Metronidazole and the evaluation of various parameters like swelling behavior, drug pH stability, in vitro drug release and in vitro cytotoxic activity. Two different concentrations of metronidazole hydrogel formulations were prepared. Hydrogel formulation F1 showed improved percentage control growth when compared to F2 hydrogel formulation and metronidazole alone.

Experimental methods

Poloxamer-407, Water purified by reverse osmosis, MilliQ, USA and further filtered by 0.22 μ m membrane filter. HPLC grade methanol Metronidazole (99.41% purity). Preparation of Metronidazole loaded Poloxamer 407 hydrogel-Metronidazole loaded hydrogel formulations (F1 and F2) were formulated by dissolving 150 mg poloxamer 407 in Millipore water. After hydrogel formulation of metronidazole following evaluation for various parameters were carried out like, HPLC Analytical method- The concentration of MT in hydrogel was determined using developed validated analytical method

Introduction

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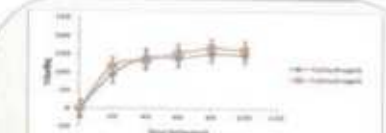


Chromatogram of metronidazole at 15 μ g/mL using mobile phase Methanol: water (70:30 v/v).

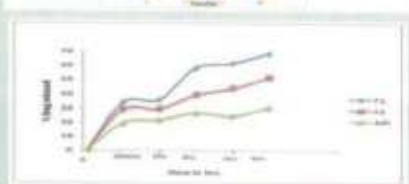
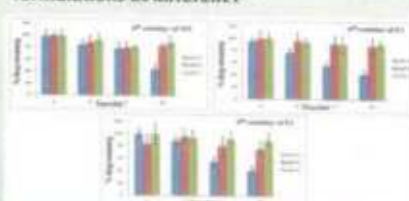
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Conclusion

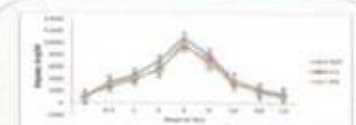
Rely on empirical evidences; the present study confirmed that prepared metronidazole hydrogel formulations have showed better bioavailability and PH stability. Among two formulations F1 has shown little better cytotoxicity over F2 formulation when compared to metronidazole alone. Hence metronidazole loaded hydrogel formulations can be considered to be a promising system for the delivery of metronidazole for cytotoxic potential.



Swelling behaviour of MT loaded hydrogel formulations (F1 and F2)
Stability study of metronidazole hydrogels formulations at different pH



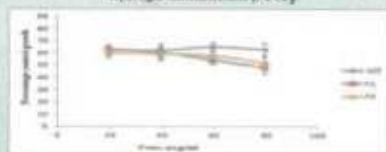
The in vitro drug dissolution profile of MT and MT loaded hydrogel formulations



Growth Curve of metronidazole and two hydrogel formulations (F1-F2) on SCC 29 cell



The SCC-29 colon cancer cell lines treated with MT and hydrogel formulations (F1-F2)



Growth Curve of metronidazole and two hydrogel formulations (F1-F2) on SCC 29 cell lines.

Thimmaraju MK, Bheemanapally K, Dharavath R, Kakarla L, Botlagunta M. Improved anticancer activity of meloxicam hydrogels in K562 and HL60 cell lines. *J Young Pharm.* 2017;9(2):209-13.
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Warangal (Dt) - 506 231 (T.S.)



Controlled Release Society

Asia-Pacific Region Chapters

17 August 2018

LETTER OF ACCEPTANCE TO PRESENT AT THE 1st CONTROLLED RELEASE ASIA (CRA) MEETING

Dear Dr Dalapathi Gugulothu (Passport No L4349809; 22/08/2013 - 21/08/2023)

Thank you for submitting an abstract for the first Controlled Release Asia (CRA) meeting, which will be held on the 24th and 25th of September 2018 in Singapore.

We are delighted to inform you that your abstract titled "Exploring Various Natural Mucilages as a Pharmaceutical Additives in Advanced Drug Delivery Systems" has been accepted for a poster presentation at the conference.

If you are unable to attend the conference, it is important that you inform us as soon as possible.

We look forward to your participation in the meeting.

Best regards,

Dr Malinda Salim (Secretary-Controlled Release Asia Meeting)

Drug Delivery, Disposition and Dynamics

Monash Institute of Pharmaceutical Sciences

Monash University (Parkville Campus)

381 Royal Parade, Parkville

Victoria 3052, Australia



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Warangal (Dt) - 508 331 (T.S)

Exploring Various Natural Mucilages as a Pharmaceutical Additives in Advanced Drug Delivery Systems

Dalapathi Gugulothu, Suraj Kumar Choudhary

Balaji Institute of Pharmaceutical Sciences

Laknepally (V), Narsampet, Warangal Rural, Telangana, 506331, India

Email: dalugugulothu@gmail.com

ABSTRACT SUMMARY

The mucilages were extracted from *Coccinia grandis* fruit, *Rumex vasicarius* leaves, *Fenugreek* and *Colocasia esculanta* tubes using solvent precipitation method and subjected for evaluation of various physicochemical, micromeritics properties, FTIR, DSC, XRD, bioadhesive properties, gel strength and Viscosity. The results of the said evaluation parameters indicated that the extracted mucilages are excellent excipients for drug delivery applications as compared to synthetic polymers.

INTRODUCTION

Currently, the plant derived natural mucilages or biopolymers are tremendously increasing demand in the pharmaceutical applications. They are used as diluents, binders, disintegrants, thickeners, antioxidants, protective colloids, gelling agents and cosmetic applications. Today, the entire globe is showing interested in natural drugs and excipients because of their chemically inert, biocompatible, nontoxic, less expensive, biodegradable, widely available, non irritant and Eco-friendly. In the present investigation, we have extracted the mucilages from *Coccinia grandis* fruit(CG), *Rumex vasicarius* leaves(RV), *Fenugreek*(FG) and *Colocasia esculanta*(CE) tubes for exploring as a pharmaceutical additives or excipients for the development of Advanced Drug Delivery Systems and which are very good substitutes for synthetic excipients.

EXPERIMENTAL METHODS

The mucilages were extracted from CG, RV, FG and CE using the solvent precipitation method and subjected for evaluation of various physicochemical properties, Malisch test, Ruthenium red test, Iodine test, FeCl₃ test, Silver nitrate test and Barium chloride test for confirmation mucilages. Furthermore, the mucilages also evaluated for bulk and tapped density, Compressibility index, Hausners ratio, Angle of repose, FTIR, DSC, XRD, bioadhesive properties, gel strength and Viscosity studies; finally compared with the synthetic polymers.

RESULTS AND DISCUSSION

The mucilages were successfully extracted from CG, RV, FG and CE tubes using the solvent precipitation method. The percentage yield was 7.7 %, 6.5 % 13 % and 16 % respectively for CG, RV, FG and CE. The results of the compressibility index and angle of repose were shown in Table 1, and these results indicated that mucilages obtained from RV, FG and CE was exhibited excellent flow properties and CG mucilage was shown good flow behavior. The results of the FTIR, DSC and XRD studies indicated that the extracted mucilages were amorphous in nature. Furthermore, the results bioadhesive, gel strength and viscosity data for extracted mucilages was comparable to the HPMC K4M, HPMC CPS15, Guar gum, Xanthan gum and Tragacanth at the concentration of 10 % gel.

Table 1 Results of the Compressibility index and Angle of repose of the extracted mucilages.

Mucilage obtained from	Compressibility Index (%)	Angle of Repose(θ)
CG fruit	18.91	25, ,
RV leaves	13.71	20
FG	13.15	22
CE tubes	14.41	19

CONCLUSION

The mucilages were successfully extracted from CG fruit, RV leaves, FG and CE tubes using the solvent precipitation method. Based on the results of the all characterizations parameters; the mucilages are successfully employed as versatile pharmaceutical excipients in advanced drug delivery systems and substitute for the synthetic polymers.

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Laknepally (V), Narsampet (M)
Warangal (Dt) - 506 331 (T.S)

Acceptance of Paper for Poster Presentation at 70th Indian Pharmaceutical Congress

October, 24, 2018

Dear **Dr. MANISH KUMAR THIMMARAJU**,

We are pleased to inform you that your paper entitled "**Design and in vitro evaluation of gastro retentive oral matrix tablet formulations of Ketorolac Tromethamine**" has been accepted for presentation as "**Poster No:A-64**" in Poster Session at the 70th Indian Pharmaceutical Congress.

As a presenter, you must be a registered delegate for the 70th IPC. However, only the Abstracts of those presenters, who are registered by **31st October 2018**, will be published in the final abstract CD. You should have your registration badge at the poster venue in order to present the poster.

Registration Committee

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Website: www.scientificipca.org; Email: ssc@70ipc.in

Kindly have your membership details at the time of poster presentation or in case you have applied for membership and have not received the membership number as yet, you may have the Photostat copy of the membership payment receipt / DD raised for the purpose as proof.

Kindly bring a copy of this letter and photo ID for identification at the poster presentation. Your date of presentation will be displayed on the website (www.scientificipca.org) by **10th November, 2018**.

It is also mandatory for the presenting author to submit the duly signed author declaration form at the time of poster presentation. The same is available along with this letter or it may be downloaded from the website (at downloads <http://www.scientificipca.org/downloads.php>). The letter of acceptance can also be downloaded by signing in on the website with the username and password provided at the time of registration for paper submission.

The area provided for poster presentation will be about 0.95 meter (95 cm) wide by 1.2 meter height (120 cm). For more detail about poster specifications, kindly look into <http://www.scientificipca.org/posterspec.php>

Note: Poster presenter have to bring their necessary stationery (Adhesive tape, Pins etc.,) since there will not be any facility available in the venue.

We look forward to meet you at 70th IPC.

Kind regards,



Prof. K.P.R. Chowdary, Co-Convenor - SSC
 Dr. Arun Garg, LOC-SSC
 Dr. A. Ramkishan, Convenor - SSC




PRINCIPAL

Balaji Institute of Pharmaceutical Sciences
 Laknepally (V), Narsampet (M)
 Warangal (Dt) - 506 331 (T.S)

Author Declaration Form

Name of the presenting author : Dr.MANISH KUMAR THIMMARAJU

Affiliation : Balaji institute of pharmaceutical sciences

Title of the Paper : Design and in vitro evaluation of gastro retentive oral matrix tablet formulations of Ketorolac Tromethamine

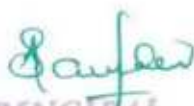
Section : Pharmaceutical Technology

Poster Code : A-64

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Balaji Institute of Pharmaceutical Sciences
Laknepally (V), Narsampet (M)
Warangal (Dt) - 506 331 (T.S)