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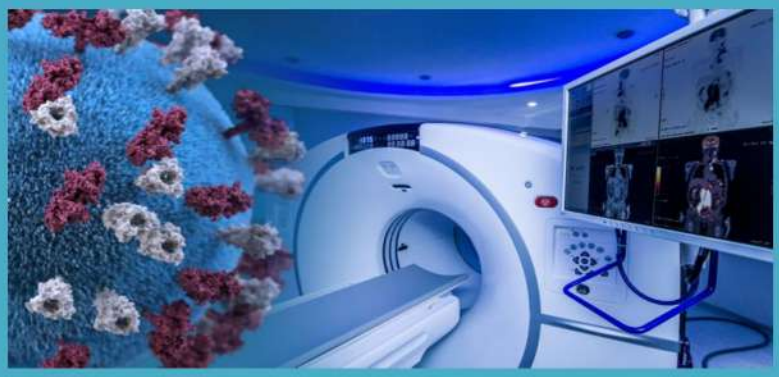


DEPARTMENT OF ATOMIC ENERGY- BOARD OF RESEARCH IN NUCLEAR SCIENCES SPONSORED

NATIONAL SYMPOSIUM

COVID-19 PANDEMIC: IMPACT ON GLOBAL NUCLEAR MEDICINE & RADIOPHARMACEUTICALS

ORGANISED BY
CHAMELI DEVI INSTITUTE OF PHARMACY, INDORE

Sponsored By
DAE-BRNS

राष्ट्र की सेवा में परमाणु
BRNS
ATOMS IN THE SERVICE OF THE NATION

March 12, 2022

CONTENT

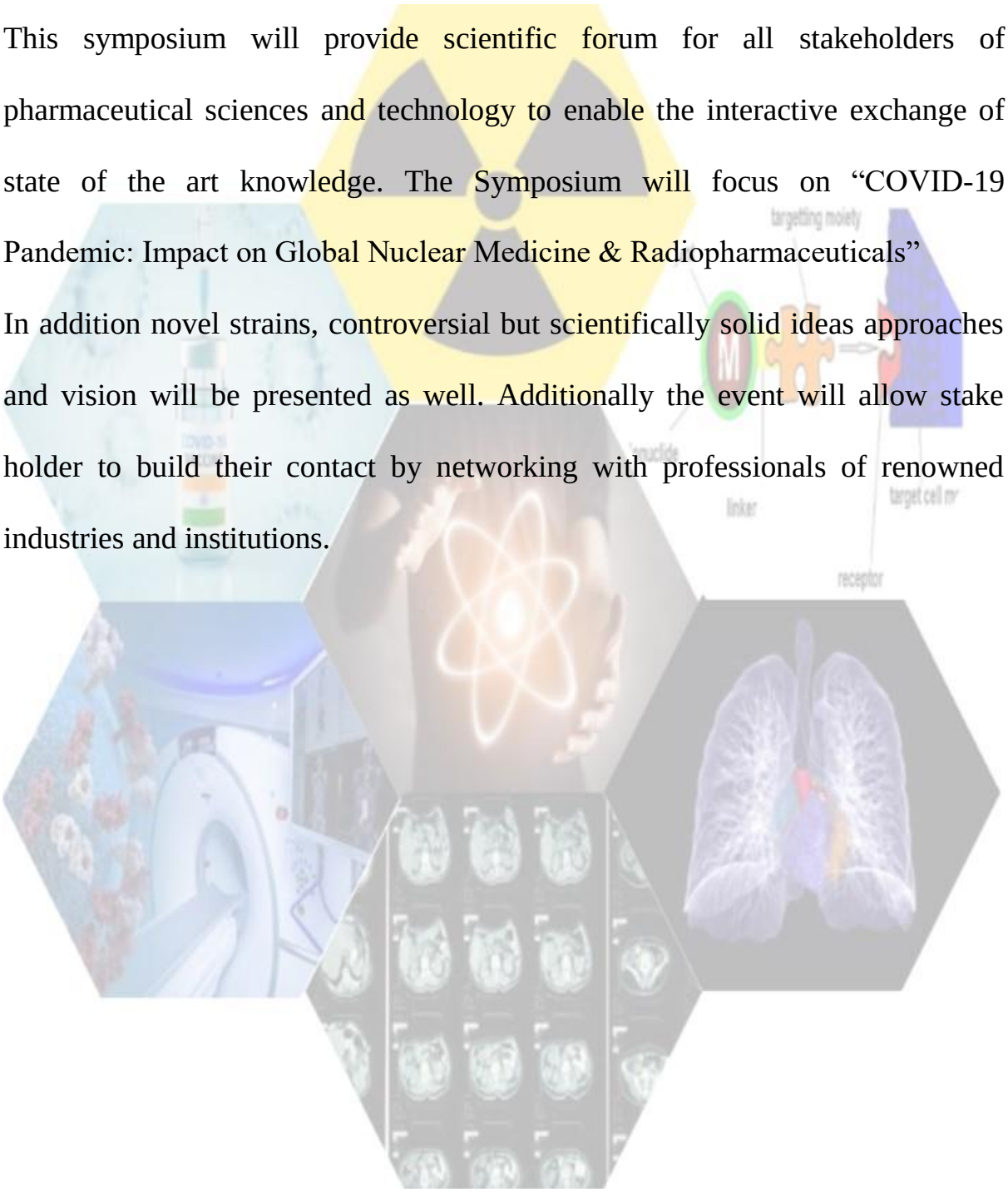
ABOUT INSTITUTE

Chameli Devi Institute of Pharmacy is playing a significant role in the holistic development of young professional in addition to bridging the gap between the levels of quality education. The institute has a greater responsibility of making the student fraternity to be competent at national and international levels.

About SYMPOSIUM

This symposium will provide scientific forum for all stakeholders of pharmaceutical sciences and technology to enable the interactive exchange of state of the art knowledge. The Symposium will focus on "COVID-19 Pandemic: Impact on Global Nuclear Medicine & Radiopharmaceuticals"

In addition novel strains, controversial but scientifically solid ideas approaches and vision will be presented as well. Additionally the event will allow stake holder to build their contact by networking with professionals of renowned industries and institutions.



Chief Patron

DAE- BRNS National Symposium, 2022

Message

It gives me immense pleasure and satisfaction that ***Chameli Devi Institute of Pharmacy*** *is organizing an* ***BRNS sponsored*** *one day National Symposium on* ***"COVID-19 Pandemic: Impact on Global Nuclear Medicine & Radiopharmaceuticals" Saturday, 12th March 2022.***

I hope that the event will provide a highly stimulating and interactive platform for all the delegates, to explore and exchange the latest ideas and advancements in health care system. Symposium is composed of lectures by distinguished speakers, plenary talk, keynote addresses and technical papers and presentations to address various challenges and innovations in the field of Pharmaceutical Science and Nuclear Medicine.

I am delighted to send my best wishes to the organizers and participants of National symposium and wish all the success for the symposium.

Vinod Kumar Agarwal
Chairman
CDGI, Indore

Patron

DAE- BRNS National Symposium, 2022

Message

*I am very glad to know that **Chameli Devi Institute of Pharmacy** is organizing **BRNS sponsored** one day National Symposium on **"COVID-19 Pandemic: Impact on Global Nuclear Medicine & Radiopharmaceuticals" Saturday, 12th March 2022** .and releasing a souvenir to mark the event. Chameli Devi Institute of Pharmacy is one of the most vibrant Institute and has been actively contributing to the needs and demands of the society at large in fostering academic research and developments.*

Symposium is meant essentially for scientific exchange and generation new ideas in the chosen field along with personal interaction. I hope that this symposium will disseminate innovative ideas in new and emerging technologies in nuclear medicines.

I congratulate the organizers for their initiative and attracting a wide range of papers from experts in their fields. I wish all the speakers and delegates a most informative and enjoyable symposium.

I extend my best wishes for the success of sympsoium and release of souvenir.

Sanjay Kumar Agarwal
Vice-Chairman
CDGI, Indore

Patron

DAE- BRNS National Symposium, 2022

Message

I have immense pleasure in writing this message on the occasion of the National Symposium on ***"COVID-19 Pandemic: Impact on Global Nuclear Medicine & Radiopharmaceuticals" Saturday, 12th March 2022.*** *This symposium will provide a platform to groom young scientists from all over the country and to bridge the researchers working in academia and other professionals through current technological trends. It is a high time to create research activities among the budding professionals. May this Conference provide greater opportunities for every member of this specialty to learn more and let this learning be of immense help to the community at huge. I congratulate the organizers for their initiative and wish the Conference all success.*

Dr. Joy Banerjee
Group Director
CDGI, Indore

Orgainizing Chairman

BRNS National Symposium, 2022

"Learning gives creativity, creativity leads to thinking, thinking leads to knowledge and knowledge makes you competent."

Warm Greeting to All!!!!!

It gives me an immense pleasure that ***Chameli Devi Institute of Pharmacy*** *is organizing the National Symposium with the theme of* ***"COVID-19 Pandemic: Impact on Global Nuclear Medicine & Radiopharmaceuticals" Saturday, 12th March 2022****. The conference is aimed to provide the platform for industrialists, educationists, researchers and students to debate and discuss on the Radiotracer Techniques that will improve nutritional status and health of animals and plants. The unique event will explore the significance of nuclear medicine and their benefits. The symposium with your support is putting its best efforts to conduct this mega event in a befitting manner, considering the importance of radiotracer techniques. The theme of the symposium seeks to not only strengthen our commitment towards the ideals of our specialty, but also to encourage us to look ahead and stay abreast of the latest developments in radiotracer techniques and academic research. The entire symposium will be addressed by eminent scientists and professors as key note/invited speaker while it will also attract young researchers, faculties and students across the country, who will take part as poster presentations. I extent my warm welcome to the resource persons young researchers, budding Pharma professionals, eminent scientists, guests, faculties, and industrialists in this splendid conference and wish the conference a great success. I hope all the delegates will derive maximum benefit from this event and take back fond memories of the Indore experience!*

Best wishes…

Jai Hind

Dr. Arun Kumar Gupta
Principal
CDIP, Indore

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Shri Vinod Kumar Agarwal
Chairman, CDGI, Indore

PATRON
Shri Sanjay Kumar Agarwal
Vice- Chairman, CDGI, Indore

Dr. Joy Banerjee
Group Director CDGI, Indore

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PROGRAMME SCHEDULE

Time	Activity	Venue
09:00 am -10:00 am	Registration, Kit distribution & Breakfast	Auditorium
10:00 am -11:00 am	Inaugural Function	Auditorium
PLENARY LECTURES		
11:00 am -12:00 am	Scientific Session I	
12:00 am - 01:00 pm	Scientific Session II	
01:00-02:00 pm **LUNCH**		
02:00 pm – 03:00 pm	Scientific Session III	
03:00 pm – 04:00 pm	**E-Poster Presentation**	
4:00-04:20 pm	Award ceremony & Valedictory Function	Auditorium
04:20-04:40 pm **HIGH TEA**		

RESOURCE PERSON

Dr. Haridas G
SOG, Department Health Physics
RRCAT, Indore
Topic: Radiation Isotopes it's application and Safety Aspect

Dr. Virendra Bhandari
HOD, Radiotherapy
SAIMS, Indore (M.P.)
Topic: Use of Radiation and Radiopharmaceuticals in treatment of Covid 19

Dr. Payal R Dande
HOD, Pharmacognosy
School of Pharmacy & Technology Management, SVKM's NMIMS, Shirpur (M.S.)
Topic: Impact of Covid-19 on Pharmaceutical World and Nuclear Medicine

ABSTRACT INDEX

CDIP/ BRNS/01

Development and In- Vivo Study of Poly-Herbal Oral Dispersible Film for the Management of Emesis

Abhimanyu.S.Rathore[1], Anmol Upadhyay2, Ashwin Sharma[3], Anshul Namdev[4], Dheeraj Gour[5], Arun Kumar Gupta

[1]Chameli Devi Institute of Pharmacy, Khandwa road, Umrikheda, Indore M.P. India

[2]IPS Academy, college of Pharmacy, knowledge village, A.B. road, Indore

Abstract

The aim of the present study is to developed and in-vivo study of polyherbal oral dispersible film for the treatment of Emesis by solvent casting method. Main objective of this formulation using herbal plant extract like *Matricaria chamomila* flower, *Syzygium aromaticum* (bud), along with *Foeniculum vulgare* (fruit) it will give an improved therapeutic effect and reduced the noxiousness. Therefore, to achieve synergistic therapeutic effect with less chance of adverse drug reaction. Formulation was prepared using active chemical constituent of herbal extract. In In-vivo study we followed experimental protocol, we are using three groups of healthy male rates (180 -300gm) six in each group, we were performed PICA test process for study histological characteristics and statistical analysis of emesis treatment value. Formulation is names F1 to F6 studied for thickness, dryness, percentile elongation, folding endurance, in vitro release testing along with stability studies. Among all F5and F6 were best in all the formulation because of excellent result in In vivo histological and statistical experiment protocol and showed maximum release of film in 5 minutes in In-vitro prospective, F5 AND F6also showed excellent result in other evaluation parameters. This developed oral herbal dispersible film increase patient compliance and safety with natural sources for the management of Emesis.

Key words: Film, Emesis, Herbs.

CDIP/ BRNS/02

Herbal drug and widespread study of *Withania coagulans* as Medicinal Plant

Shikha Sharma*, Sourabh D. Jain
School of Pharmacy, Devi Ahilya Vishvavidhyalaya, Takshshila Campus, Khandwa Road, Indore, Madhya Pradesh, India
Chameli Devi Institute of Pharmacy, Gram Umrikheda near Toll Naka Khandwa Road, Indore

Abstract

Modern approaches of phytochemistry and pharmacology might lead to new breakthroughs in drug research. The better understanding of traditional application and processing of medicinal herbs resulted in the discovery of novel mechanisms of action and new active constituents of *Withania coagulans.*

The universal role of plants in the treatment of disease is exemplified by their employment in all the major system of medicine, irrespective of the underlying philosophical premise. A vast reservoir of chemical diversity for screening programs aimed at new drug discovery and most of the drugs which are mentioned in the Indian medicinal system are from plant sources. Since the beginning of the human civilization, plants have been used as a folk medicine and pharmacopoeial drugs. About 80% of the world's population is totally dependent on plant extract and its derivatives for the treatment of various infections and diseases. In India, about 2000 drugs used are of plant origin and the search for phytomedicines that are safe and affordable is still on-going. *Withania coagulansis* one such medicinal plant which have a lot of pharmacological potency for treatment of several diseases such as an antidiabetic, anticancer, anti-inflammatory**.**

Key words: *Withania coagulans*, Antidiabetic, Anticancer, Anti-Inflammatory, Phytomedicine.

CDIP/ BRNS/03

Formulation of Herbal Hair Mask

Devshree Gayakwad*, Deepak Patidar, Neeta Jirati, Sweta S.Koka, G. N. Darwhekar
Acropolis Institute of Pharmaceutical Education and Research, Indore. Madhya Pradesh, India

Abstract

The hair is the most fragile component of the human body. As a result, we created a hair mask formulation to take care of them. Hair masks are used to eliminate filth that has accumulated in the hair. Hair masks contain coconut oil, which is used to apply the mask on the hairs. The hair mask created is 100% chemical-free. It contains only natural substances that are safe for our hair.

Hair masks can aid to hydrate our tresses. They're especially good for hair that's dry or damaged. Hair masks can help to restore the health of our scalps and strengthen our hairs. These hair masks can be prepared at home, have no drawbacks, and are really useful.

This product is critical for those whose hair is extremely thin or whose hair is damaged. When our air is in good condition, it enhances our whole appearance. There are many different types of masks on the market, but they all contain chemicals. Chemicals are also harmful to our hair. As a result, we've created a chemical-free product. This mask is incredibly simple to make.

Material and Methods: Tulsi leaves, Aloe vera and Curry leaves were obtained from the Institutional garden of Acropolis Institute of Pharmaceutical Education and Research, Indore, MP. Lemon, Amla, Methi, Coconut oil, Almond oil and Ginger were collected from the local market and were authenticated on the basis of the pharmacognostic, physiochemical and phytochemical screening. Hydro alcoholic extracts of Neem, Tulsi, Lemon, Ginger and Amla was prepared using Soxhelt extract method. This mask was evaluated for its various physiochemical parameters like pH, viscosity, appearance, wash ability, consistency, colour, spreadability, irritancy test.

Result and Discussion: The above characterization parameters were found satisfactory and cause no harm to our body. Though the more application to our human skin, it was observed that this hair mask was able to make our hair healthier, shiny, thick and long. The parameters were then tested by dermatological testing and can be used for treatment of damaged hair without causing any adverse effects to our scalp.

Key Words: Herbal, Hair mask, Tulsi, Aloevera

CDIP/ BRNS/04

Formulation & Evaluation of Antifungal gel using natural ingredient: *Swertia Chirata*

Shraddha Mahajan*, Sweta S. Koka, G.N. Darwhekar
Acropolis Institute of Pharmaceutical Education and Research, Indore

Abstract

The goal of this study was to formulate and evaluate an antifungal gel made up from hydroalcoholic extract of Swertia chirata against Candida albicans. The different combinations with different concentrations were used to formulate the gel of hydroalcoholic extract of Swertia chirata. The gel further evaluated for its physiochemical characteristics, in-vitro antifungal efficacy. The result of investigation performed on different parameters was found satisfactorily as compared to the standard parameters. The chief bioactive constituents of plant like xanthones, flavonoids, and glycosides have various pharmacological activites. The antifungal activity of gel topical formulations displays a dose-dependent zone of inhibitions in an exponential way.

Based on the findings, the extracts could be used as a starting point for the development of a potential antifungal medication in the form of a topical herbal gel.

Keywords: Antifungal agents, Herbs used for antifungal activity, Swertia Chirata

CDIP/ BRNS/05

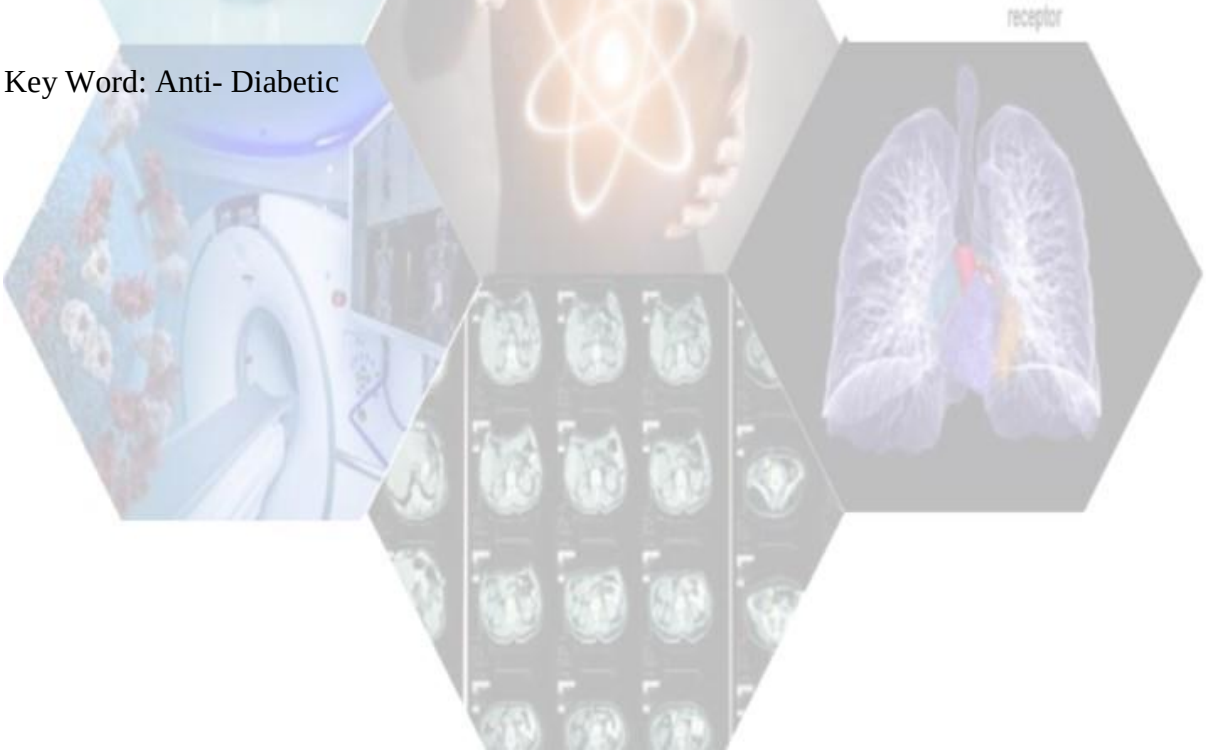
Interactions between Anti-diabetic Drugs and Herbs: A Review

Ruchika Mourya* and Rajesh Sharma
School of Pharmacy, Devi Ahilya Vishwavidyalaya, Takshashila Campus, Khandwa Road

Abstract

Diabetes mellitus is a chronic disorder in which the insufficient usages or level of insulin cause blood glucose level to rise, which is responsible for number of diseases. It is a common trend in Asian counties specifically in India that herbal medicine/s along with allopathic medicine/s is used. More than 800 plants are reported to have anti-diabetic property. The simultaneous use of herbs with drugs may modify pharmacodynamic and pharmacokineticproperties of the drugs. This effect may be positive or negative, hence in the present review interactions (pharmacodynamic and pharmacokinetic) of twenty seven plants having anti-diabetic property with oral anti-diabetic agents have studied.

Key Word: Anti- Diabetic



CDIP/ BRNS/06

Diagnosis, Treatment and Safety Management of Nuclear Medicine during Covid-19 Pandemic

Sayyed Mohsina*

CACPS Pharmacy College, Indore M.P. India

Abstract

The covid-19 crisis has disrupted medical activities including the practice of Nuclear medicine. As a result, a lot of healthcare organizations struggle to come up with various effective approaches to stop the spread of Covid-19 pandemic. During the Covid-19 crisis, there is a notable decrease in nuclear medicine diagnostic and therapeutic procedures that have resulted in marked changes to clinical operations with clinical preparedness for current and future incidences.

Diagnosis is done by using different methods like X-ray, computed tomography, PET-CT, SPECT, low and high-dose therapy for identification and management of infected patients. Imaging features of a patient with covid-19 using chest CT, lung ultrasound, chest X-ray, and PET-CT scan require safety measures at the workplace. The choice of therapeutic radionuclide depends on many factors like half-life, the energy of particulate emissions, volume to be irradiated, and ease of production. Nuclear medicine should continue their operation by adapting patient appointments, prioritizing essential procedures (oncology, cardiology), working plan to reinstate delayed events and radionuclide therapy involving the use of Re-188 ,Ra-223,Y-90,Ac-225, Lu-177, I-131.Following some safety measure like standard radiation protection and optimization principle, disinfecting devices and rooms, suspected Covid-19 patient should be reviewed before going to home.

Facilitating training, maintaining the record, pattern recognition to study the trend of disease will help the clinicians in real-world scenarios and help people in overcoming fear of such pandemic. Taking the lesson learned from the past during covid-19 outbreak, there is a need to develop effective progress on all scales ranging from surveillance, monitoring to prevention and treatment.

Keyword: X-ray, computed tomography, PET-CT, SPECT

CDIP/ BRNS/07

Repercussions of Radiopharmacy in Covid-19

Shivani Fotedar1, Anshul Namdev2, Sakshi S. Chouhan3
Chameli Devi Institute of Pharmacy Gram Umrikheda, Khandwa Road, Indore, M.P.India

Abstract

The coronavirus pandemic has disrupted normal activities across the world, from economy to socialization, and claiming hundreds of thousands of lives. Some recent studies evaluated the role of fluorine-18 fluorodeoxyglucose as a radiopharmaceutical for positron emission tomography/computed tomography (PET/CT) imaging in patients with Coronavirus Disease (COVID-19). This article aims to perform a systematic review in this setting. A comprehensive computer literature search in PubMed/MEDLINE and Cochrane library databases regarding the role of PET/CT in patients with COVID-19 was carried out.Herein, we critically examine recent diagnostic, prognostic, and therapeutic advancements for COVID-19 in the field of radiopharmaceuticals. This requires development and execution of a robust and dynamic plan elaborating the healthcare guidelines. Hence, our review paper covers the arena of nuclear medicine services in particular. Conclusion: Nuclear medicine can play its role in mitigating COVID-19 transmission to personnel and patients if provided with ample PPEs and guidelines are strictly followed. With implementing SOPs (standard operating procedures) based on these guidelines, nuclear medicine facilities will be better prepared for impromptu actions in case of any future outbreak while retaining the smooth flow of obligatory healthcare services.

Keywords: PET/ CT, Covid-19, Radio pharmacy.

CDIP/ BRNS/08

PET & SPECT in Covid-19

Aayushi Arora*, Nayan Joshi, Nayany Sharma Sakalle, Dinesh Kumar Mishra
Indore Institute of Pharmacy, Indore, Madhya Pradesh, India

Abstract

The emergence and global spread Covid-19 caused by the novel coronavirus SARS-CoV-2 has resulted in a continuing threat to global health. Covid-19 affected more than 200 countries and 100 hundred million people worldwide. Though the pandemic has been under control after several waves in most of the countries, the global prevalence is still rapidly increasing. A more comprehensive understanding on imaging manifestations of Covid-19 is essential for the early evaluation of the huge patient population.

The formidable challenges facing global health systems raise the unprecedented need for effective approaches to facilitate better strategies of diagnosis and treatment of Covid-19 patients.

Based on the principle of molecular imaging, positron emission tomography (PET) and single photon emission computer tomography (SPECT) are expected to offer pathophysiological alterations of Covid-19 in the molecular/cellular perspectives and facilitate the clinical management of patients.

PET shows the great potential to aid in the management of multiple diseases including Covid-19. It makes it possible to monitor Covid-19 at molecular level and thus provides essential guidance for the subsequent diagnosis, evaluation and treatment of Covid-19.

Key Words: Covid-19; SARS-COV-2; Molecular imaging of SARS-COV-2; Radionuclide therapy of Covid-19; Diagnostic radionuclides; therapeutic radionuclides; PET; SPECT

CDIP/ BRNS/09

COVID-19: Impact on Diabetes Patient

Mayur Sisodiya, Ram Ashish Kushwaha, Ravi Rathore
Chameli Devi Institute of Pharmacy, Khandwa road Indore M.P. India

Abstract

The present pandemic of covid-19 (CORONA VIRUS DISEASE-19) has terrorized relationship with diabetic patient. The recent trend has shown that subject with diabetes mellituss (DM) where found to have more propensities for multiple variant of covid attack evidence implies that patient with diabetes are at a higher risk of severe disease or death due to covid-19 then individual without diabetes.Covid-19 is an infectious disease developed by severe acute respiratory syndrome (SARS-COV-2) .The DM has been provocative for many infections like acute respiratory attack syndrome, ketoacidosis, diabetic neuropathy, emphysema, bronchial asthma, alveoli dysfunction. Diabetes is characterized by impaired glucose homeostasis resulting from insulin resistance and deficiciency. As we know diabetes is a well established risk factor and prector for elevated morbility and mortaility. The recent studies demonstrated that covid-19 infection altered the physiological activity of islets of langerhans in the pancreatic tissue that consist of beta cells which result in decreased production of insulin. Steroids given orally like hydrocortisone, deflazacort, prednisolone etc. raise the glucose level for part of the day especially consumption of the dose in the early hours and its effect (increase glucose level in later hours) which is evedent from past reported literatures. By considering above facts it's necessary to mention that pharmacist can play a prominent role in bringing the awareness among diabetic population specially that are dependent on steroid and antidiabetic medication of pre/post covid-19 patients.

Keywords: Diabetes, SARS-COV-2, Deflazacort, Prednisolone

CDIP/ BRNS/10

Impact on Respiratory System especially in 2nd wave of Covid-19 in India

Rupali Jitesh Rathod [1], Anshul Namdev [2]

Chameli Devi Institute of Pharmacy, Indore Gram Umrikheda, Khandwa Road, Indore

Abstract

The COVID-19 pandemic has had a profound effect on health and well-being worldwide and there is increasing recognition of the need to understand the psychological and Behavioural impact of COVID-19 experiences and stress in addition to the physical health consequences. Propelled by the surge during second wave, India accounted for about 12.4% of all Covid infections reported around the world in 2021. As far as deaths are concerned, everyone in 10 people who died of Covid was an Indian. While the figures do seem daunting, they are disproportionate to India's share of population. In Addition, Studies have identified various circulating double-mutant and triple-mutant strains of SARS-CoV-2 across different regions of India, which are more pathogenic than the initial strains. Such altered transmissibility and pathogenicity indicate evolution of the virus. During the second wave in India, many cases of mucormycosis, also known as the black fungus, have been reported in patients with diabetes and patients with COVID-19, as well as patients who were recovering from infection. The excessive use of steroids in the treatment of COVID-19 and immunosuppression by the virus led to the emergence of this opportunistic fungal infection. If COVID-19 pneumonia progresses, more of the air sacs can become filled with fluid leaking from the tiny blood vessels in the lungs. Eventually, shortness of breath sets in, and can lead to acute respiratory distress syndrome (ARDS), a form of lung failure. In this review we conclude that how covid-19 virus is progressively affect respiratory system.

Keywords: Covid-19, Pneumonia, SARS-CoV-2

CDIP/ BRNS/11

Black Fungus (Mucormycosis) after Covid-19 Infection

Apoorva Patidar*

Chameli Devi Institute of Pharmacy, Gram Umrikheda Khandwa Road Indore M.P. India

Abstract

Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. The Black Fungus, scientifically known as Mucormycosis, is an aggressive, severe and rare fungal infection that is affecting a number of pre and post COVID-19 patients. The Black Fungus, scientifically known as Mucormycosis, is an aggressive, severe and rare fungal infection that is affecting a number of pre and post COVID-19 patients. The majority of the cases have been the infection of patients that are recovering or have recovered from COVID-19. It has pile on to the number of strains that the country is facing as we had only just begun to understand a means to cope with the present pandemic. Commonly referred to as the Black Fungus, Mucormycosis is a rare fungal disease that comes from a mold that grows on decaying and rotting organic matter. Mucormycetes is the fungal mold that causes the infection and when a person is exposed to this, it affects the sinus and the eye region. The infection spreads when the body is not strong enough to fight the illness on its own. Mucormycosis is an air borne fungal infection that is naturally present in the air, water and even in food. It can enter the body through fungal spores in the air or more uncommonly, through open wounds and cuts in the body. When inhaled, it infects the sinus regions and causes eye swelling, displacement and even loss of sight.People also experience weakened muscles and paralysis. The fungus can also infect the lungs and cause difficulties in breathing, coughing of blood and chest pain. The fungus is rapidly progressive and it infects the lungs at a speedy rate. If the fungus happens to enter the body through open wounds, it can spread on the skin and cause painful inflammations on the skin and the underlying tissues. Sometimes, the ulcers formed on the body can form into blisters and lead to tissue loss. Under rare circumstances, the fungus infects the intestines, chambers of the heart or the kidneys. The infection greatly depends on the organ that is infected.

Keywords- COVID-19, Black fungus, mucormycosis, infection, steroids, antibiotics

CDIP/ BRNS/12

Nuclear Medicine in Times of Covid-19 Pandemic

Prateek Patidar

Chameli Devi Institute of Pharmacy, Gram Umrikheda Indore M.P.

Abstract

COVID-19, an infectious disease caused by the novel coronavirus SARS-CoV-2, has resulted in a continuing pandemic threat to global health. Nuclear medicine techniques can be used for functional imaging of (patho) physiological processes at the cellular or molecular level and for treatment approaches based on targeted delivery of therapeutic radionuclides. Ongoing development of radiolabeling methods has significantly improved the accessibility of radiopharmaceuticals for in vivo molecular imaging or targeted radionuclide therapy, but their use for biosafety threats such as SARS-CoV-2 is restricted by the contagious nature of these agents. They highlight several potential uses of nuclear medicine in the context of SARS-CoV-2 and COVID-19, many of which could also be performed in laboratories without dedicated containment measures. In addition, we provide a broad overview of experimental or repurposed SARS-CoV-2-targeting drugs and describe how radiolabeled analogs of these compounds could facilitate antiviral drug development and translation to the clinic, reduce the incidence of late-stage failures and possibly provide the basis for radionuclide-based treatment strategies. Based on the continuing threat by emerging coronaviruses and other pathogens, it is anticipated that these applications of nuclear medicine will become a more important part of future antiviral drug development and treatment.

Keywords: Covid-19, SARS-cov, nuclear medicine, coronavirus, radiopharmaceuticals, radionuclide therapy, radiotracer, SARS-cov-2, antiviral drugs.

CDIP/ BRNS/13

COVID-19: A brief overview of Metal Complexes used in Radiopharmaceuticals

Jyoti parmar*, Ashwin sharma
Chameli Devi Institute of Pharmacy, Khandwa Road, Indore, M.P.

Abstract

Radiopharmaceutical includes radioactive substances (radioisotopes) which are used for diagnosis or therapy. Nuclear medicine practice includes many essential radiopharmaceutical components. Which are taken either by injection, orally by mouth or by breathing. Various metal complexes are used in radiopharmaceuticals for diagnosis by imaging. Radioactive isotopes of different Complex metals emit gamma rays which are traced or imaged non-invasively, thus delivering useful information of the target tissues or organs. The general objective of the study is to introduce the various metal complexes and their applications in the field of Nuclear medicine and radiopharmaceutical development. The metal complexes which are mainly used in radiopharmaceuticals for the purpose of diagnosis by imaging are the compounds of technetium, thallium, gallium, indium, iodine, chromium, sulphur, phosphorus, fluorine, etc. All these metal complexes play an important role in the initial diagnosis of numerous disease such as phosphorus-32 is used for diagnosis of cancer, chromium-51 is used for diagnosis of red cell survival and volume, cobalt-57, 58 is used for measurement of absorption of vitamin B^{12} and diagnosis of pernicious anemia, iodine-131 is used in determination of thyroid function and many more. Along with diagnosis purpose metal complexes are also used for radiotherapy, sterilization, research and analytical applications.

Key words: Radiopharmaceuticals, Nuclear medicine

CDIP/ BRNS/14

Nuclear Medicine in Times of COVID-19

Sakshi Singh Chouhan[1], Shivani Fotedar[2], Priyanka Gupta[3]
Chameli Devi Institute of Pharmacy, Gram Umrikheda, Khandwa Road, Indore M.P.

Abstract

The emergence and global spread of COVID-19, an infectious disease caused by the novel corona virus has resulted in a continuing pandemic threat to global health. Nuclear medicine techniques can be used for functional imaging of physiological processes at the cellular or molecular level and for treatment approaches based on targeted delivery of therapeutic radionuclides. Ongoing development of radiolabeling methods has significantly improved the accessibility of radiopharmaceuticals for in vivo molecular imaging or targeted radionuclide therapy, but their use for biosafety here, we highlight several potential uses of nuclear medicine in the context of SARS-CoV-2 and COVID-19, many of which could also be performed in laboratories without dedicated containment measures. In addition, we provide a broad overview of experimental or repurposed SARS-CoV-2-targeting drugs and describe how radiolabeled analogs of these compounds could facilitate antiviral drug development and translation to the clinic, reduce the incidence of late-stage failures and possibly provide the basis for radionuclide-based treatment strategies. Based on the continuing threat by emerging corona viruses and other pathogens, it is anticipated that these applications of nuclear medicine will become a more important part of future antiviral drug development and treatment.

Keywords: Diagnostic Radionuclides, Therapeutic Radionuclides, Radioimmunotherapy,

CDIP/ BRNS/15

Role of Nuclear Medicine & Radiopharmaceuticals in Admist of Covid-19

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Chameli Devi Institute of Pharmacy Gram Umrikheda, Khandwa Road, Indore, M.P, India

Abstract

The emergence and global spread of COVID-19, an infectious disease caused by the novel coronavirus SARS-CoV-2, has resulted in a continuing pandemic threat to global health. Every medical department worldwide is bracing for the impact the covid-19 had caused, the scientific community starts to excel in exploring the different facets this novel disease bears for prevention, diagnosis and treatment. Nuclear medicine, depicting itself "molecular medicine" as well as "theranostic medicine" as it has much to offer. Ongoing development of radiolabelling methods has significantly improved the accessibility of radiopharmaceuticals for in vivo molecular imaging or targeted radionuclide therapy; we highlight several potential uses of nuclear medicine in the context of SARS-CoV-2 and COVID-19, many of which could also be performed in laboratories without dedicated containment measures. Radiolabelled analogs of these compounds could facilitate antiviral drug development and translation to the clinic, reduce the incidence of late-stage failures and possibly provide the basis for radionuclide-based treatment strategies. Until now, however, existing knowledge regarding supportive care and adjunctive pharmacologic therapy is limited. COVID-19 patients that seems to do well after getting out of the intensive care unit, dies of acute respiratory syndrome just several days later, without clinical signs indicating their imminent deterioration. This situation may be one of the first places where nuclear medicine should tune in. Based on the continuing threat by emerging coronaviruses and other pathogens, it is anticipated that these applications of nuclear medicine will become a more important part of future antiviral drug development and treatment.

Keywords: Radionuclide therapy of COVID-19, diagnostic radionuclides, therapeutic.

CDIP/ BRNS/16

Formulation and Evaluation of Polyherbal Formulation for the Treatment of Eczema

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Abstract

The Present study was aimed to formulate and evaluate polyherbal gel for the treatment of eczema. Eczema can be identified by itching, scaling, oedema and erythema. The topical herbal approaches are quite effective because it overcomes the side effects and provides effective treatment of eczema. In present work four herbal extracts of Nigella Saliva, Aloe Vera, Glycyrrhiza glabra,Azadirachta indica were taken for the formulation of topical formulation. In this experiment all the herbs were studied as for phytochemical and macroscopic evaluation, and then the extracts were incorporated in gel bases. Ten formulations were prepared in which different concentration of Carbopol 940 was taken. Herbal gel was prepared by using Carbopol 940, methyl paraben, propyl paraben, propylene glycol. Physicochemical parameters were also performed including colour, odour and appearance. Formulation F3, F7, F8, F9 showed best results in different evaluation parameters. pH of formulation was 6.65±0.22, 6.75±0.07, 6.83±0.15, 6.92±0.11 respectively. In this experimental work spreadability, extrudability and homogeneity of herbal gel were also performed. Herbal gel was also evaluated for viscosity and the results were 32127±0.75, 34.457±0.01, 35527±1.03, 36655±0.51 respectively. In this study herbal gel was also tested for antimicrobial activity and the zone of inhibition for above four formulations (F3, F7, F8, F9) were 10±0.8, 9±0.5, 12±0.9, 11±0.8 respectively. Above four formulations were also tested by performing In-vivo antibacterial studies. Formulation F8 was considered as the best formulation as it showed the best result in evaluation parameters. Formulation F8 was monitored for stability studies for a period of three months.

Keywords: Eczema, carbopol 940, herbal gel, antibacterial studies.

CDIP/ BRNS/17

Safety of Floating Behavior and Drug Release of Metoprolol Tartrate with Xanthan Gum

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Abstract

Various approaches followed to enhance GR (Gastric Retention) Time for oral dosage form. Floating system has low bulk density & they can float on gastric juice in the stomach. They can retain drug for longer time. This system can enhance drug's safety and reduce side effect thus ultimately, bioavailability enhanced.

Hydrodynamically balanced tablets of metoprolol tartrate can be formulated with an approach to increase gastric residence and thereby improve drug bioavailability. An attempt to develop floating tablets of metoprolol tartrate, using sodium bicarbonate as gas generating agents and HPMC as hydrophilic polymer and Xanthan gum as binder by direct compression technique was achieved. The formulated tablets showed compliance for various physiochemical parameters viz. tablet dimensions, total floating time, tablet density and drug content. The dissolution studies formulations of F1, F2 were good release and F4 formulation was excellent. Data obtained from kinetic treatment revealed F1, F2 and F4 formulations follow zero order model. The results of stability studies indicated that the most suitable storage temperature for metoprolol tartrate floating tablets was 2-8 ^{o}C for a period of 60 days.This results in an increased GRT and a better control of the fluctuations in plasma drug concentration.

Key words: Floating, Metoprolol, GRT

CDIP/ BRNS/18

Study on the Effect of Anxiety on the Transcellular Intestinal Permeability of Venlafaxine

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Abstract

Exposure to stress is reported to have major effects on the pharmacokinetics of any orally administered drug, including various anti-stress agents. Venlafaxine is a recently approved anti-depressant that is being approved for used in stress disorders. Recently, it was reported by us that oxidative stress induced by H_2O_2 increases paracellular transport of drugs across rat intestine while transcellular transport remains unchanged. Hence, in continuation, present study aimed to investigate the effect of psychosocial and psychophysical stress on apparent permeability of Venlafaxine in male rats. Herein, the stressor was selected to closely resemble real life situation. Studies were performed on Wistar rats; crowding stress model and electric foot shock model were employed for stress induction. Permeability was estimated in stressed and non-stressed rats by using everted rat intestine apparatus. Mean apparent permeability of Venlafaxine was found to be 53.668± 6.77 x 10^{-6} cm/sec in ileum and 75.93±12.55x 10^{-6} cm/sec in jejunum of non-stressed rats. Results revealed that psychosocial and psychophysical stress did not alter the intestinal permeability of Venlafaxine, substantiating our previous findings that acute stress exposure does not alter the transcellular transfer of drugs across small intestine.

Keywords: Psychosocial stress, Psychophysical stress, Pharmacokinetics, Bioavailability

CDIP/ BRNS/19

Synthesis, Characterization and Anti-Inflammatory Activity of Novel 1, 5-Disubstituted Indole Derivatives

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Abstract

A new series of 1,5-disubstituted indole derivatives such as 5-(acetylamino)-1-[(4-flurophenyl)carbonyl]-1H-indole-3-carboxylic acid, 1-[(4-fluorophenyl)carbonyl]-5-[(phenylcarbonyl)amino]-1H-indole-3-carboxylic acid, 1-(4-flurobenzoyl)-5-(4-ethylbenzamido-1H-indole-3-carboxylic acid, 5-(4-nitrobenzamido)-1-(4-flurobenzoyl)-1H-indole-3-carboxylic acid, 5-(4-bromobenzamido)-1-(4-flurobenzoyl)-1H-indole-3-carboxylic acid were synthesized. All the newly synthesized derivatives of 1, 5-disubstituted indole derivatives are characterized by spectroscopically and analytically. All compounds were screened for their anti-inflammatory activity. The pharmacological screening of the synthesized compounds showed anti-inflammatory activity ranging from 12.12 to 65.51 % inhibition. The compound I was found to be nearly more potent then indomethacin which is used as standard drug. A compound III has shown less activity then indomethacine. Compounds II and IV shown more potent activity than compound –I, V and Indomethacine.

Keywords: 1,5-disubstituted, Pharmacological screening, Indomethacine, Anti-inflammatory.

CDIP/ BRNS/20

Develop and Evaluate Oral Film of Antiemetic Drug Using Mixed Solvency Concept

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Abstract

This study aimed to develop and evaluate oral film of antiemetic drug-using mixed solvency concept. The Mixed-solvency concept was used in the solubility enhancement of domperidone, an antiemetic drug that is practically insoluble in water. Different types of solubilizers have been used for solubility improvement of domperidone and from them (Poly ethylene glycol, niacinamide, caffeine) were the best. Five formulations were prepared by using HPMC E15(film-forming polymer). The prepared oral films were subjected to evaluation for thickness, pH, drug content, folding endurance, stability, and in vitro drug release profile. The percent of drug release of the best two formulations F3and F5was 90.70% was 96.62 % respectively. The prepared oral films showed fast drug release. From the above study, it was concluded that the solubility of a practically insoluble drug (Domperidone) could be improved successfully by using different water-soluble solubilizers in different ratios under the mixed-solvency concept.

Keywords: Mixed solvency, Anti-emetic, Oral film

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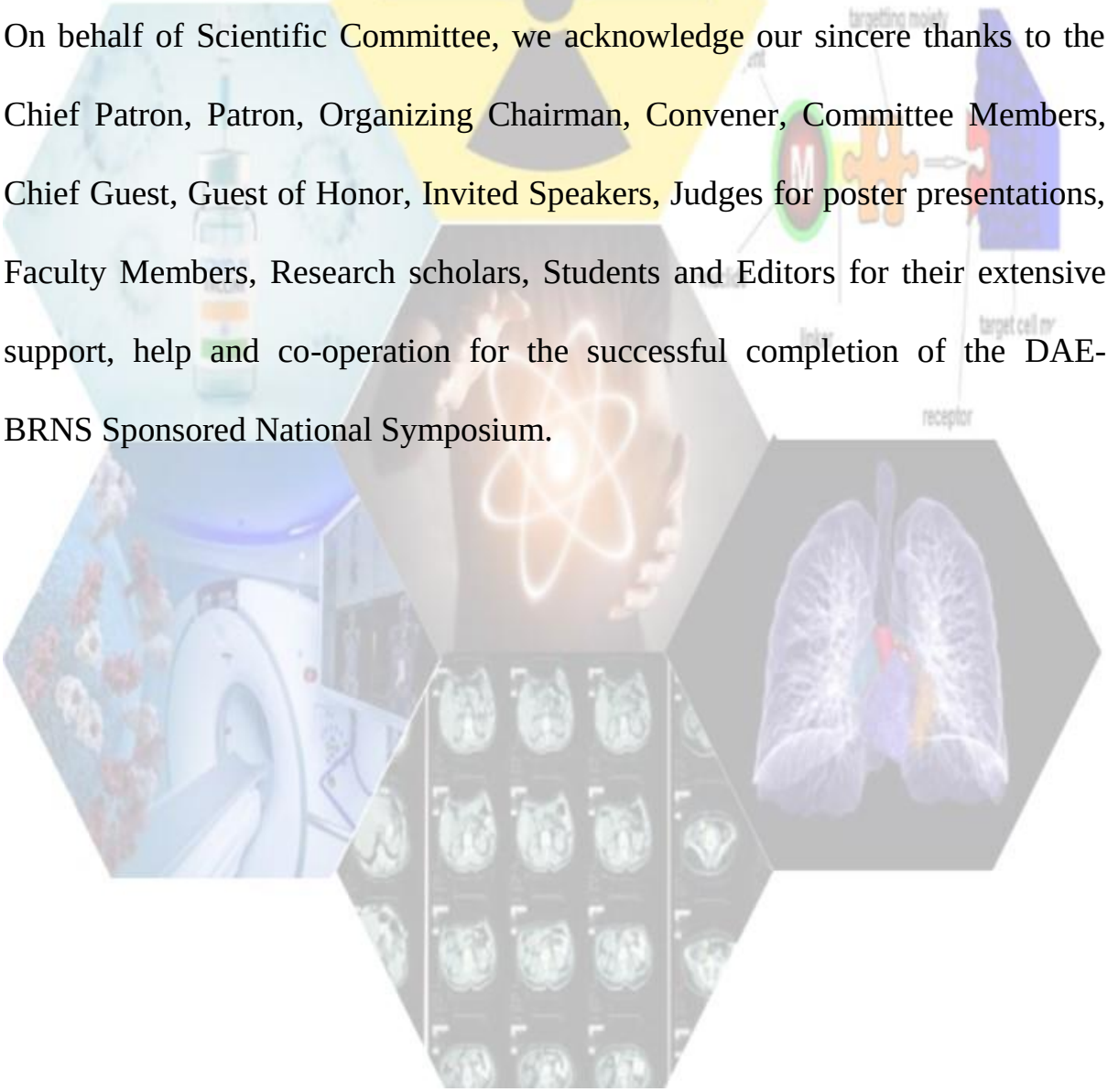

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