





ENIKEPADU, VIJAYAWADA - 521 108.

## Pharmacist's Oath

I Swear by the code of Ethics of Pharmacy Council of India in relation to the community and shall acts as an integral part of health care team.

I shall uphold the laws and standards governing my profession.

I shall strive to perfect and enlarge my knowledge to contribute to the advancement of pharmacy and public health.

I shall follow the system, which I consider best for pharmaceutical care and counselling of patients.

I shall endeavour to discover and manufacture drugs of quality to alleviate sufferings of humanity.

I shall hold in confidence the knowledge gained about the patients in connection with my professional practice and never divulge unless compelled to do so by the law.

I shall associate with organizations having their objectives for betterment of the profession of Pharmacy and make contribution to carry out the work of those organizations.

While I continue to keep this Oath unviolated, may it be granted to me to enjoy life and the practice of pharmacy respected by all, at all times!

Should I trespass and violate this oath, may the reverse be my lot!

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#### A Great Visionary...

#### "Siddhirbhavati Karmaja Success is Born of Action"

Sri Boyapati Srinivasa Appa Rao garu is an eminent industrialist with expertise in the field of education. As a Mechanical Engineer, he started various industrial units manufacturing cement machinery, agricultural implements, special casting and electrical distribution transformers. He is the initiator to come up with the first vegetable cold storage of its kind in Andhra Pradesh. He served as the President of A.P. Small Scale Industries Association. He rendered his services as a member of Central Small Scale Industries Advisory Board and State Small Scale Industries Advisory Board.



Sri Boyapati S. Appa Rao Founder Chairman

He is instrumental in establishing the Siddhartha Academy of General & Technical Education by being one of its founders, and promoted various educational institutions to rise to excellence. He is actively associated with the Private Engineering Colleges' Association from its inception in 1980, which addresses the various problems faced by the private managements. He is serving the association as the President for the past six years.

As one of the pioneering educationists of the city, he desires of establishing Research and Development wing for inculcating scientific outlook, humanism, the spirit of equity and reform among the student community. His objective is to produce world class engineers and pharmacists endowed with human values to serve the society and to bridge the gap between industry and the educational institutions. He aims at promoting women empowerment through educational institutions exclusively for women, which in turn help the society to grow.

Sri B.S. Appa Rao garu, laid the foundation for S.R.K. Group of Institutions which he aims to develop as model institutions for enhancing the quality of education and research. He acts as a guiding force behind the enviable success of S.R.K. Foundation. The Foundation's ascent to prominence in such a short span can be attributed to his strong will power, caliber, conviction, and his dynamic leadership, in pursuing his objectives.

His achievements and experiences speak more than words. He believes in the philosophy of education that envisages a complete man, in harmony with tradition and technology. He is endowed with an indomitable spirit to perceive a better world by realizing his vision.

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## A Tribute to ....

#### "Yatra Naryastu Poojyante, Ramante Tatra Devatha"

Smt. Boyapati Vijaya Lakshmi, a woman of excellence with a blend of social service and philanthropy is a blessing in disguise to the 'Vijaya Group of Institutions' established under the umbrella of S.R.K. Foundation. It is aptly said that behind every successful man there is a woman and it has been the proven success of Sri Boyapati S. Apparao, and also she is the woman behind the flourishing institutions.



Smt. Boyapati Vijaya Lakshmi Member, SRK Foundation

Smt. Boyapati Vijaya Lakshmi's goodness lies in identifying the need of the hour to donate her property for the noble cause of 'Women Education'. A highly qualified woman of kindness and perseverance, she has always been there in promoting the welfare programmes taken up by Vijaya Group of Institutions.

A poised woman of balanced will and empathy, she has cherished a desire to serve the poor and needy of the society. Therefore, her social milieu in combination with her service oriented nature has enabled her to participate and conduct various social service initiatives. She has extended her helping hand to the idea of Sri Boyapati S. Apparao, and today the seed has witnessed as a growing tree with all its blooming branches, spreading the essence of women education.

An embodiment of Indian family traditions and values, she has been an inspiration for thousands of young women engineers, pharmacists and business managers.

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Chairman's Message .....

At the outset, I congratulate the team of Vijaya Institute of Pharmaceutical Sciences for winning the title Best Emerging Organization in Pharma Education and my heartfelt greetings to Principal, Dr. K. Padmalatha for being awarded the Woman of Excellence title by Scoremore Foundation, Vijayawada.

VEPA 2017-THE VIJAYA PHARMACY the annual magazine is on a striking progress consecutively for the third year and it has been exemplary in standing out for the campus dynamism. College milieu inspires the young minds to uncover the thirst for knowledge and helps to grow as a person to change the world. As such, the NSS youth activities of the institution need a special mention, which provide the students a social out-reach and build in them a social awareness, social service and social activism. The magazine is a galore of the multifarious talents of the Pharma professionals. The scientific articles reflect the recent cutting edge phenomena in the Pharmacy field.

As today's world is greatly identity driven, I strongly believe that Vijaya Institute of Pharmaceutical Sciences has already made its mark as the best women's organization in and around Amaravati.

I wish you all a phenomenal success in your endeavours!

(B.S. APPARAO) Chairman









#### PHARMACY COUNCIL OF INDIA

(Constituted under the Pharmacy Act.1948)

Prof. B. Suresh M.Pharm., Ph.D., D.Sc. President

Combined Councils' Building Kotla Road, Aiwan-E- Chalib Marg P.B. No. 7020, New Delhi-110 002 Phone: 011 23239184, 23231348. Fax: 011 23239184 Vice-Chancellor, JSS University Sri Shivarathreeshwara Nagar, Mysuru-570 015 Phone: 0821 2548391 Fax: 0821 2548394 sureshbhojraj@gmail.com sureshjssuni@hotmail.com www.jssuni.edu.in

Message....

I am delighted to write this message for the college Magazine being published by Vijaya Institute of Pharmaceutical Sciences for Women, Vijayawada.

On this occasion, I congratulate the Principal, Faculty, Staff and students for bringing out this college magazine and convey my good wishes and hope that this edition of the college magazine would be meaningful, enjoyable and memorable.

With best wishes.

(Dr. B Suresh) President



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Dr. KAMINENI SRINIVAS Minister for Health, Medical Education & Family Welfare, Govt. of Andhra Pradesh.





I extend my warm wishes to the Principal, staff and students of Vijaya Institute of Pharmaceutical Sciences for Women for publishing the third issue of VEPA-The Vijaya Pharmacy.

Students opting for Pharma education have to play substantial roles in their careers and must uphold the ethical and regulatory standards of the industry. In my view, women can play their roles significantly better than men as they are naturally endowed with the sublime qualities of concern, care and commitment. Pharma industry has been continuously evolving and requires a big talent pool to meet its exemplary innovative standards. The educational institutions need to leverage the vision of the industry through insightful initiatives in its R&D department.

A college annual magazine gives one such opportunity to students to come out with their new ideas to accelerate innovation in the field. It serves as a platform to hone their interests and skills in the literary field as well.

I hope that the institution will continue to maintain its excellence with great distinction in the years to come.

I wish you good luck in your endeavours!!

(Dr. Kamineni Srinivas)









JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA KAKINADA-533003, Andhra Pradesh (india)

Prof. V.S.S. KUMAR Ph.D, (IIT-D), Post-Doc.,(USA) VICE-CHANCELLOR



A college magazine reflects the ideology of the institution, the achievements of the students and commitment of the faculty. Education does not happen by chance. It focuses on all time effort and all round development of students. **VEPA 2017 – The Vijaya Pharmacy** marvels in its completeness and credibility in upholding the laurels of the institution. The institution stands exemplary with its exceptional academic and extra-curricular activities of the students. The highly informative scientific articles of the students and faculty enhance their research interests besides promoting their writing skills.

*I congratulate the magazine committee, Principal, staff and students on this venture.* 

May the students of this institution find and excel in the careers of their choice!

(Prof. V.S.S. KUMAR)



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THE INDIAN PHARMACEUTICAL ASSOCIATION (EDUCATION DIVISION) Office at : S.B.D.College of Pharmacy. I Cross,

> Hanumanthanagar, BANGALORE - 19. e-mail : tvnarayana2000@yahoo.com





I have great pleasure to share this message to Vijaya Institute of Pharmaceutical Sciences for Women, Vijayawada, Krishna District, Andhra Pradesh. I congratulate the management, Principal, staff and students on bringing out the third issue of the college magazine VEPA 2017- The Vijaya Pharmacy.

College magazine is the right platform for the students to unleash their potential in education, research and in many more literary ventures.

I wish that the magazine, a collection of creative ideas, scientific data and skill will spread its fragrance of knowledge all over.

(Dr. T. V. Narayana) Vice-President – IPA and Chairman, IPA-Education Division





Dr. KOLA VIJAYA SEKHAR M.S., M.Ch., (OPh.) (USA IM) B.L., Ph.D., M.B.,B.S., B.A.M.S., F.C.C.P., F.A.I.M.S., F.A.G.E., F.C.G.P., D.Ac., M.A.M.S., MICARTC.,

N.D., D.H.M., I.C.S.E.P., M.I.P.H.A., C.Diab., M.Drc., C.N.N., M.Th., PHYSICIAN - SURGEON - EYE SPECIALIST - GENERAL CONSULTANT PROFESSOR - GUNTUR MEDICAL COLLEGE, GUNTUR CIVIL SURGEON - GOVERNMENT GENERAL HOSPITAL, GUNTUR



I congratulate the Principal, staff and students of Vijaya Institute of Pharmaceutical Sciences for Women on their third issue of VEPA 2017-The Vijaya Pharmacy. The wide range of opportunities can be grabbed by the students, only when they acquire quality education. Vijaya Institute of Pharmaceutical Sciences for Women can be highly commended in this regard as it is sincerely working on its mission to serve the state, nation and world by producing outstand Pharmacists. Community service also forms an integral component of health-care education, and VIPW finds its own place in this regard.

Holistic education aims at training the human soul by allowing the students to comprehend the power within them. A college magazine is one such avenue where the students can exhibit their writing skills in both scientific and literary fields. It stands a witness to the achievements of the students.

Let's find ourselves and be ourselves. —Dale Carnegie

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(Dr. Kola Vijaya Sekhar)



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Dr. Vallabhaneni Vamsi, M.V.Sc. M.L.A., Gannavaram Constituency, Krishna District, Andhra Pradesh.



Office Address : D.No. 5-1, Main Road, Opp. Govt. Hospital, GANNAVARAM - 521 101. Ph. : 08676-253666 Fax : 08676-253599 Cell : 9491122644 e-mail : mlagvrm@gmail.com



Message....

I find the women of Vijaya Institute of Pharmaceutical Sciences for Women enthusiastic to make their careers in the field of Pharmacy. NSS youth activities of the institution provide them with a social out-reach and build in them a social awareness, social service and social activism. In my opinion, a college magazine is similar to an honest biography, a more open straight talk and places the achievements of students on record. VEPA is a potential documentation of enthusiasm, imagination and perseverance. The magazine is a galore of the multifarious talents of the young women Pharma professionals. As today's world is greatly identity driven, I strongly believe that Vijaya Institute of Pharmaceutical Sciences for Women will make its mark as the best women's organization in and around Amaravathi.

Best wishes!!!

(Dr. Vallabhaneni Vamsi)







Your work is to discover your world and then, with your entire heart, give entirely yourself to it — Buddha

At Vijaya Institute of Pharmaceutical Sciences, we believe in the concept of promoting education endowed with compassion and human values. Our mission is to follow a curriculum, which meets the needs of the academia and industry.

The concept of teaching beyond the classroom and the industrial tours inculcate deep, active learning and exposes them to real life issues, adding another dimension to their studies. The members of the teaching faculty, in the pursuit of teaching excellence adopt learner-centered techniques to stimulate the interests of students.

Making themselves a part of various government initiatives, our dynamic NSS youth wing, a team of change agents moves ahead with a social responsibility. Both as responsible citizens and pharmacists, they have been playing their roles successfully by involving themselves in programmes like cashless transactions and health campaigns. In this regard, we are happy to publish, Sanjivani, a purely educational and informative news letter on Pharma Practice. The maiden venture has already been received and welcomed by the Pharmacy professionals

Students find time to interact with one another, to address questions of life and trace out a solution together. They participate in various activities and competitions, in spite of placing themselves in a heavily loaded professional curriculum. The skills they acquire here prepare them for leadership roles in their careers.

The training programmes, workshops and conferences we conduct make them open to collaborate with the extended academic and industry fraternity from the Pharmaceutical field. The received information will add new perspectives to their existing knowledge and enrich the research practice.

The Pride India Shiromani Purskar awards given to the institution as Best Emerging College in Pharma Education and Woman of Excellence conferred up on me by the Score More Foundation, Vijayawada increase my responsibility manifold towards continuing the institution's name to remain in the first place.

I sincerely thank the management for being highly supportive which makes us to take up many more such initiatives in the years to come. It's a collaborative and cooperative work of the teaching and non-teaching members of the institution that's running the institution on the wheels of success.

Happiness, success and good luck be with you always!!!

(Dr. K. Padmalatha)



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It is with the approach of being ambitious, owning shooting-for-the-stars ideas, buckling down to get into the nano-scopic details and being sure to get there have made our institution a highly competitive and qualitative place of learning for the Pharmacy professionals. VEPA 2017-THE VIJAYA PHARMACY promotes the artistic and creative endeavours of students, besides demonstrating the interests in their own field of interest, Pharmacy. The magazine is worth reading with all its substance representing the academic empowerment of students.

Let this prestigious venture be a strand of creative continuity and my best wishes to the staff and students of Vijaya Institute of Pharmaceutical Sciences!

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(B.S. Sri Krishna) Secretary





Editor Speaks...

Education breeds confidence, confidence breeds hope and hope breeds faith. — Confucius

**VEPA 2017-THE VIJAYA PHARMACY** is the success story of *Vijaya Institute of Pharmaceutical Sciences*, a team which believes in itself, in its strengths and capabilities. It is a three year toddler now, geared up to give the readers a creative and academic fiesta. It strikes a balance between the learning of science and arts. It's always highly rewarding to invest in education, and the fruits are always sweet and the annual magazine gives them an opportunity to explore the advanced fields of Pharmacy education. The articles included in the magazine stand up for the knowledge, research, scientific progress and the upcoming trends in the health care industry.

*Vepa* is a result of interaction, innovation and collaboration of the team of Vijaya faculty and students. The issue reflects the true spirit of the young pharmacists who are devoted to "**extend the horizons and scope of pharmacy practice.**"

I thank the magazine committee for making this issue an enlivening one. This magazine looks colourful and eye pleasing, thanks to Girish Media.My sincere thanks to Girish Media for making it colourful and eye-catching.

Learning cannot be observed just in words, written or spoken, indeed it's a preparation for you to face the world.

So, my dear students! March ahead, grab the opportunities and live your roles.



About the College ...

Vijaya Institute of pharmaceutical sciences for women (VIPW) is established in the year 2009 by "S.R.K. Foundation" under the Chairmanship of Sri. Boyapati Srinivasa Appa Rao. A renewed Educationalist and Industrialist having more than three decades of rich experience in promoting and administering the professional colleges.

The institution is committed to provide quality education and empower women in the field of pharmacy to cater the needs of the society in health care sector and also to uplift the socioeconomic status of women through quality education.

The institution is permitted by Govt. of Andhra Pradesh, AICTE – New Delhi, approves by pharmacy Council of India-New Delhi, affiliated to JNTU Kakinada and is certified by ISO 9001 – 2008.

The institution is offering B. Pharmacy (100 Seats), M. Pharmacy in Pharmacology (15 Seats), Pharmaceutics (15 Seats), Ph. Analysis & Quality Assurance (15 Seats) and Pharm D (30 Seats).

The institution has received NEA Award 2015 (National Andhra Pradesh Education Awards) for "Excellent Co-Curricular Activities for Women Students in Andhra Pradesh".

The prestigious golden jubilee celebrations of **Indian Pharmacological Association**, **ERIPSON 2017** are held in the institution.

Score More Foundation, Vijayawada has awarded the institution as the Best Emerging Institution in Pharma Education for its remarkable achievements and Woman of Excellence award has been conferred upon Principal, Dr. K. Padmalatha for leading the institution towards success.

The institution has obtained the MOU with Government General Hospital, Vijayawada which is 730 bedded teaching hospital with more than ten departments for imparting the clinical training for Pharm D and Pharm D (Post Baccalaureate) Courses.



## **VEPA - THE VILLAGE PHARMACY**

Neem is a precious gift from the Mother Earth. Our ancestors worshiped the Neem tree as they believed that it not only protects the health against diseases but also drives away the evil eye. Today, Indians consider it as the most versatile for its multitude of medicinal and other uses.

The Indian poets called Neem as Sarva Roga Nivarini, and the rural Indians call it as '**The Village Pharmacy'**. Neem foundation states that the Neem is "tailor-made for combating the serious problems confronting mankind today". The medicinal benefits of Neem are spoken about in the Vedas; the world's oldest scriptures. It has provided a wide range of valuable remedies for more than 5,000 years, equally supporting the health of the humans' and livestock on the planet.

The majestic, deciduous evergreen Neem, the native of Indian subcontinent, is one of the world's most effective and widely used herbs. It is easy to grow Neem in a wide range of temperatures and conditions and the tree can live for 150 to 200 years. The knowledge about its uses and benefits has spread all over the world from India.

Neem is one of the main ingredients in every blood purification formula used in Ayurveda and it appears in most diabetic formulae as well. It is also used to cure arthritis, rheumatism, in the elimination of external and internal parasites, including malaria and various kinds of viral fevers and infections. It is an insect repellent and is reported to have exhibited the ability to control at least 125 species of pest insects.

One of the most famous uses of Neem is to prevent tooth decay and gum disease. Neem twigs have been in use for thousands of years by millions of people in India as 'chewing sticks' to cleanse their teeth and gums to maintain oral hygiene.

Mahatma Gandhi encouraged scientific investigation of the Neem tree to revitalize Indian traditions, which eventually paved a way for in depth research on Neem. Acharya Narula, a research professor in the Department of Biology at The University of North Carolina, embarked on extensive research on Neem felt that Neem stands true to its Sanskrit name **Arishta** which means "reliever of sickness", hence rightly called as 'The Village Pharmacy'.



## **VEPA - THE VIJAYA PHARMACY**

**'The Vijaya Pharmacy'** is a precious gift for women from S.R.K. Foundation. The empowerment of women speaks of humanism. The luminaries who empower succeed in satisfying human needs and human interests. It is this ideology that sparked 'The Vijaya Pharmacy' on a marathon march of scientific progress to serve humanity.

Vijaya Institute of Pharmaceutical Sciences for Women was started in the year 2009 to mold the graduates of pharmacy, to meet the ever-increasing need in the pharma industry and health sector.

"Education, together with reproductive health, is one of the most important means of empowering women with the knowledge, skills and self-confidence necessary to participate fully in the development process".

**P**harma professionals endowed with patience, tolerance, ambiance and dedication are in great need to the public health and industry in the present scenario. Our institution plays a key role in producing the individuals who make up to be a part of competent health care workforce.

As the essence of health care is human service, VIPW aims to train pharmacists who build ambiance with the society, and who believe that compassion can be a powerful catalyst for healing. Our institute

contributes for the significant growth of health care industry by sharing its resources with those in need.

Most change begins small but, multiple small acts of positive effort can influence a transformative change in creating the benchmarks along the journey to measure success and progress.

VIPW's pharmacists would surely extend the horizons and scope of pharmacy practice which include more traditional roles and modern services related to health care. It is sure that they are endowed with the philosophy of joyous service for the greater good of humanity.

'The Vijaya Pharmacy' will fully stands as an example to the ultimate pearl of wisdom by Albert Einstein, "A man's ethical behaviour should be based effectually on sympathy, education, and social ties and needs; no religious basis is necessary".

## Instituta Achiavamants





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#### **ACADEMIC EXCELLENCE**



Ms. Abdul Rameeza



#### **SPORTS EXCELLENCE**



Ms. B. Harsshene Gold Medalist in Table Tennis

## M. PHARM 2014-16



Ms. K. Deepthi Dept. of Pharmaceutics

M. PHARM 2015-17



Ms. Md. Meherunissa Dept. of Pharmaceutics

## CLASS TOPPERS

Ms. M. Anusha



Ms. Md. Nowrin Sultana Dept. of Pharmacology



Ms. K. Mounika Dept. of Pharmacology



Ms. A. Alekhya Prasanna Dept. of Ph. Anal. & QA



Ms. K. Hema



Ms. B. Yamini 1<sup>st</sup> B. Pharm



Ms. M. Bhavya 2<sup>nd</sup> B. Pharm



Ms. D. Lakshmi 3<sup>rd</sup> B. Pharm



Ms. K. Sindhu 4<sup>th</sup> B. Pharm



#### **ORGANIZING COMMITTEE**



Sri B. S. Appa Rao Chairman



Prof. Dr. K. Padmalatha Principal



Mr. S. Venkateswara Rao Assoc. Professor, Academic In-charge



Mr. D. Srinu Naik Asst. Professor, External Duties In-charge



Sri B. S. Sri Krishna Secretary



Mr. A. Jayarami Reddy Assoc. Professor, Campus Discipline In-charge



Mrs. R. Padmaja CA, Accounts In-charge







Dr. K. Padmalatha Principal & Prof., Dept. of Pharmacology

#### **DEPARTMENT OF PHARMACOLOGY**



Dr. E. Tamil Jothi M. Pharm., Ph. D



Mr. A. Jaya Rami Reddy M. Pharm., (Ph. D)



Mrs. D. Santhi Krupa M. Pharm.,

DEPARTMENT OF PHARMACEUTICAL CHEMISTRY



Mrs. P. Pradeepa M. Pharm.,



Mrs. V. Greeshma M. Pharm.,



Mr. G. Muthu Bhoopathi M. Pharm., (Ph. D)



Ms. Sk. Fathima M. Pharm.,



Ms. M. Tejaswi M. Pharm.,



Mrs. E. Jajili M. Pharm.,



Mr. N. Vijay Kumar M. Pharm.,



Mrs. J. Ramya M. Pharm.,

**DEPARTMENT OF PHAMACEUTICAL ANALYSIS** 



Dr. L. Mohan Krishna M. Pharm., Ph. D



Mrs. D. Deepikana M. Pharm.,



Mrs. S. Archana M. Pharm.,



Ms. T. Sai Priya M. Pharm.,

Mr. Bala Krishna M. Pharm.,

**DEPARTMENT OF PHARMACEUTICS** 





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Mr. S. V. Suresh Babu M. Pharm.,



Mrs. A. V. S. Hima Bindu M. Pharm.



Mr. S. Venkateswara Rao M. Pharm., (Ph. D)



Mr. P. Sai Krishna M. Pharm., (Ph. D)



Mrs. G. Alekya M. Pharm.,



Mrs. Arifa Begum M. Pharm., (Ph. D)



Mr. D. Srinu Naik M. Pharm.,



Mrs. K. R. Rajeswari M. Pharm.,



Mr. M.Srinivasa Rao M. Pharm.,



Mrs. B. Hemalatha M. Pharm.,



Mrs. P. M. M. N. Lakshmi Varma M. Pharm.,

#### **DEPARTMENT OF S & H**



Mrs. M. Vani M. Pharm., (Ph. D)



DEPARTMENT OF PHARMACOGNOSY

Mr. S. Sundar M. Pharm., (Ph. D)



Mrs. V. Lakshmi Anusha M. Pharm.,

Mr. V. Srinivas M.B.A, M. Sc. (Stat), M.Phil., (Ph. D)

Mrs. V. Lakshmi Anusha M. Pharm.,





Dr. A. Chandhra Sekar BHMC, PGDHM, M.Sc. (Appl. Psy.)



Mrs. M. N. Lakshmi Prasanna M. Pharm. (Ph. D)



**Dr. Dinesh Kumar Meena** Pharm. D



Pharm. D



Mr. Y. Naveen M. Pharm.,





#### **GLANCE AT RESEARCH FACILITIES**



**GLANCE AT RESEARCH FACILITIES** 



#### **GLANCE AT LAB FACILITIES**



BALANCE ROOM



































**GLANCE AT LAB FACILITIES** 

























1<sup>st</sup> M. Pharmacy [2016 - 2018]



Non Teaching Staff







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A WORK SHOP ON **"QUALITY BY DESIGN (QBD) IN PRODUCT DEVELOPMENT** AND RECENT TRENDS IN **BIOANALYTICAL TECHNIQUES**" 27th JANUARY 2017







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# **NATIONAL WOMEN'S PARLIAMENT**



# 'VIJRUMBHANA'

Vijaya Institute of Pharmaceutical Sciences for Women gives perfect opportunity for all students to participate in the competitions and showcase their creative talent through 'VIJRUMBHANA'. Programmes are organized to encourage creative pursuits and nature talents. There is a competition and a spirit of camaraderie too, as students from various levels like B. Pharm, Pharm D and M. Pharm come together to participate.

Team work can be educational, exhilarating and challenging. The teams Achievers, Inspirers, Sizzlers and Sparklers compete in the event 'VIJRUMBHANA'. The discrimination among students as seniors / juniors is avoided by grouping the students randomly from first B. Pharm to second M. Pharm. These groups are headed by the nominated faculty Coordinators and student group leaders. They represent the respective teams in competitions through out the year.

'VIJRUMBHANA' has a unique flavor and style that makes it a much expected and memorable moment. It is a confluence of ideas, a perfect blend of the arts, the skills and the passion to perform. Students get thoughtful planning, convenient amenities and a warm welcoming environment to participate in all events.

Achievers: Achievers are influenced by motivational reminder "What you get by achieving your goals is not as important as what you become by achieving your goals".

Inspirers: They are the people filled with enlivening, exacting emotion to complete. This is the power of gathering where actions are guided to be more enhanced, thoughtful and more alive to open their winning self.

Sizzlers: Sizzler team is guided by an unwavering pursuit of excellence. They push the boundaries and surge forward to win. Their most certain way to succeed is always to try just one more time.

Sparklers: They are obviously bonfires raving about success with new strength and new thoughts. They burn to emit colored flames and sparks of victory. Their motivational fire to complete is "the will to win" the desire to succeed, the urge to reach full potential. This is their key that will unlock the door to excellence.

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# VIJAYA INSTITUTE OF PHARMACEUTICAL SCIENCES FOR WOMEN







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## **GOVERNING BOARD MEMBERS**

Sr. No	Name of the Member	Designation
1.	Sri. Boyapati Srinivasa Apparao, B.E	Chairman
2.	Sri. Boyapati Srinivasa Sri Krishna, M.S.EM (USA)	Secretary
3.	Mr. V. Ravi Kiran, M. B. A	Treasurer
4.	Smt. B. Vijaya Lakshmi	Member
5.	Ms. Koduru Lakshmi Sudha, M. A	Member
6.	Mrs. Vadlamudi Sri Spna, M. B. B	Member
7.	Mrs. B. Sree Sangeetha, M. S. (USA)	Member
8.	Mrs. B. Slipa, B.A	Member
		,



## **IAEC MEMBERS**

Sr. No	Name of the Member	Designation
1.	<b>Dr. K. Padamalatha,</b> M.Pharm., Ph.D Prof. & Principal	Chairperson cum Biological Scientist
2.	Mr. A. V. S. Ravi Sai Nadh, M.Pharm., (Ph.D)	Member Secretary
3.	Mr. D. Yedukondalu, MVSc	Veterinarian
4.	Mr. A. Jaya Rami Reddy, M.Pharm., (Ph.D)	Scientist Incharge of AHF
5.	Mr. S. Venkateswara Rao M.Pharm., (Ph.D)	Scientist from Different Biological Discipline
6.	<b>Dr. V. Hanumantha Rao,</b> MVSc., Ph.D	CPCSEA Nominee (Main)
7.	<b>Dr. N. V. Sreekanth Babu</b> MVSc., Ph.D	CPCSEA Nominee (Link)
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S. No	Student Name	Торіс	Conference	Prize
1.	Mrs. D. Bala Durga Gayatri	Sample Preparation Techniques in Analytical Chemistry	Workshop & Seminar on Pharmaceutical Sciences, Nirmala College of Pharmacy, Mangalagiri	1 <sup>st</sup> Prize
2.	Ms. B. V. S. Sowjanya	Solid Dispersion: A Technique Improving Solubility of Poorly Soluble Drugs	Workshop & Seminar on Pharmaceutical Sciences, Nirmala College of Pharmacy, Mangalagiri	1 <sup>st</sup> Prize
3	Ms. G. Leela Nalini	Automated Methods of Analysis	Pharma Pulse 2K 16 A National Seminars, Mother Teresa College of Pharmacy, Sathupally	1 <sup>st</sup> Prize
4	Ms. Hemalatha	Different Techniques Involved in Preparation of Polymeric Nanoparticles	Pharma Pulse 2K 16 A National Seminars, Mother Teresa College of Pharmacy, Sathupally	2 <sup>nd</sup> Prize

## **PRIZES OWNED BY STUDENTS**



# LIST OF PUBLICATIONS

- 1. Dinesh Kumar Meena, Glutathione The Master Antioxidant As vital for Human Life as Oxygen, International Journal of Science and Research. (Accepted for Upcoming Issue 2017)
- 2. Dinesh Kumar Meena, Dietary Supplements that can Affect Platelet Function and Anticoagulation Status, Asian Journal of Medical and Pharmaceutical Sciences. (Accepted for Upcoming Issue 2017)
- 3. Dinesh Kumar Meena, Drug- Induced Pulmonary Disease, Indo American Journal of Pharmaceutical Research. (Accepted for Upcoming Issue 2017)
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## FORMULATION OF FLUCONAZOLE OCUSERTS: IN VITRO AND IN VIVO EVALUATION

## VenkateswaraRao Sadhu, BCD. Tejaswi, G. Pravallika, B. Bhargavi, B. Keerthi, G. Rajini and S. Priyanka

Ocular therapy in the fungal infections of eye would be significantly improves if the precorneal residence time of drugs could be increased. Successful results have obtained with inserts and collagen shields. Several polymeric systems investigated to fabricate ocular inserts for better ocular bioavailability and retention of drugs. In the present study, it was aim to prepare and evaluate ocular films containing fluconazole along with hydrophilic and hydrophobic polymers at different concentrations. Fluconazole ocular inserts were prepared by solvent casting technique using Poly vinyl alcohol and Hydroxy propyl methyl celluloseas film forming polymers and Propylene glycol as plasticizer. Six formulations were prepared. The prepared ocular inserts were characterized by means of film thickness, weight variation, folding endurance, surface pH and *in- vitro* drug release to determine the amount of drug release from selected film formula using excised goat cornea. Ocular inserts prepared were smooth and passed all the evaluation tests performed. Formulation F5 shows a maximum cumulative percentage drug release of 69.02 % at the end of 2 hours through excised goat cornea.

Key Words: Ocular bioavailability, Film forming polymers, Folding endurance and In-vitro drug release.

## SYNTHESIS, CHARACTERIZATION AND EVALUATION OF STARCH ACETATE AS RATE CONTROLLING MATRIX FOR CONTROLLED RELEASE OF ACECLOFENAC

## Venkateswara Rao Sadhu, V. Sri Rajani, B. Reshma Sri, N. Marychayal, B. Madhavi, N. Lakshmi Priya and P. Anuradha

The objective of the present study is to develop Aceclofenac control release matrix tablet formulations by wet granulation method employing starch citrate, a new modified starch. Starch acetate prepared by reacting potato starch with acetic anhydride in the presence of sodium hydroxide at elevated temperatures was insoluble in water and has poor swelling and gelling property when heated in water. The degree of substitution (DS) of starch acetate was found to be 1.60 and high DS develop hydrophobicity are insoluble acetone and chloroform. In the micromeritic evaluation, the angle of repose and compressibility index values revealed the excellent flow characteristic of starch acetate prepared. All the physical properties studied indicated that starch acetate is a promising pharmaceutical excipient in tablets. Aceclofenac, a widely prescribed anti inflammatory analgesic drug belongs to BCS class II and exhibit variable oral bioavailability due to its poor solubility and dissolution rate. Matrix tablets of Aceclofenac (100 mg) prepared employing starch acetate as matrix former in different proportions gave slow and controlled release more than 12 hr. Aceclofenac release was diffusion controlled and dependent on percentage of starch acetate. As the polymer concentration was increased, release rate was decreased. Good linear relationship was observed between percent polymer and release rate (K<sub>0</sub>). Thus drug release from the matrix tablets could be controlled by varying the proportion of drug: polymer in the matrix.

Key Words: Starch acetate, Matrix tablets, Controlled release and Non-Fickian diffusion.



## DEVELOPMENT AND VALIDATION OF NOVEL HYDROTROPIC SOLUBILIZATION METHOD FOR SPECTROPHOTOMETRIC DETERMINATION OF MYCOPHENOLATE MOFETIL

Venkateswara Rao Sadhu, SK Summayya Fathima, S. Meghana, B. Hema Sai Durga, R. Mounika, S. Bhagya Lakshmi and T. Vijaya Durga

**Aim:** To develop and validate specific and accurate UV spectrophotometric method of Mycophenolate mofetil by using two different hydrotropic solubilizing agents.

**Objective:** To perform solubility studies of Mycophenolate mofetil in the solutions containing urea and sodium carbonate as hydrotropic agents and find out the minimum hydrotropic concentration of urea and sodium carbonate for drug Mycophenolate mofetil.

**Materials and Methods:** The present study deals with spectrophotometric analysis of Mycophenolate mofetil by utilizing two different hydrotropic agents such as sodium carbonate (0.2 M) and urea (0.2 M).

**Results:** From two hydrotropic agents, urea showed best aqueous solubility of Mycophenolate mofetil. The linearity was observed in the concentration range of 10-30 ig/ml. The method was validated and found to be precise. Accuracy (percent recovery) for Mycophenolate mofetil was found to be 98.97-102.72.

**Conclusion:** Urea as hydrotropic agent showed best aqueous solubility of Mycophenolate mofetil, which can be used as solubilizing agent. The proposed method is new, simple, safe, eco-friendly, economic, accurate, and cost-effective and can be successfully employed in routine analysis.

Key Words: Spectrophotometric Analysis, Hydrotropic Agents, Linearity and Accuracy

## DEVELOPMENT AND EVALUATION OF CHITOSAN BASED POLYMERIC NANOPARTICLES OF AN ANTI - ALZHEIMER'S DRUG MEMANTINE HYDROCHLORIDE

## Venkateswara Rao Sadhu and K. Deepthi

**Aim & Objective:** The aim of the study was to develop Memantine HCl loaded chitosan - sodium tripolyphosphate (STPP) nanoparticles using Ionic gelation method and evaluates their physicochemical properties and *in-vitro* release studies for possible targeted delivery to the brain. The objective was to fabricate polymeric nanoparticles for better controlled and targeting action of drug, which also overcome the problems associated with conventional formulations like multidose therapy, poor patient compliance and high cost.

**Materials and Methods:** Memantine HCl loaded chitosan nanoparticles (F1 to F6) were prepared by Ionotropic gelation method. The formulated nanoparticles were evaluated for external morphological characters, determination of particle size analysis, zeta potential, drug content, entrapment efficiency and *in-vitro* release studies.

**Results:** The particle size varied from 148 to 317 nm and zeta potential was in negative and its value found to be - 46.4 mV. The drug content for the Memantine HCl loaded chitosan nanoparticles varied from  $69.5 \pm 7.2\%$  to  $87.9 \pm 1.2\%$ . The entrapment efficiencies were found to be minimum and maximum of  $55.50 \pm 2.4\%$  and  $86.30 \pm 3.6\%$ . The percentage yields of all formulations were in the range of  $48.24 \pm 1.24$  to  $86.13 \pm 1.37\%$ . *In-vitro* release of drug follows zero order and showed sustained release behaviour for a period of 24 hr.

**Conclusion:** The optimized formulation contains 3:1 ratio of chitosan & STTP and demonstrated successful sustained release. Memantine HCl loaded chitosan nanoparticle is a potential new delivery system for treatment of Alzheimer's disease.

Key Words: Alzheimer's disease, Polymeric nanoparticles and Ionotropic gelation.



## DESIGN AND EVALUATION OF MOUTH DISSOLVING TABLETS OF TELMISARTAN BY USING DIFFERENT SUPER DISINTEGRANTS Venkateswara Rao Sadhu and A. Swathi

The aim of the present research work was to improve the solubility ultimately bioavailability of Telmisartan by encapsulating it inside the cavity of â-cyclodextrin. Formulation of drug, â-cyclodextrin and excipients were used to develop mouth dissolving tablets. Mouth is one of the most promising strategies to improve the oral bioavailability by enhancing the drug disintegration and thus the release of drug particles from the dosage form would enable quick and direct delivery into the circulatory system by avoiding first pass metabolism. Total nine batches of mouth dissolving tablets were prepared using superdisintegrants like Crosscarmellose sodium (CCS), Sodium Starch Glycolate (SSG) and Crosspovidone (CP) by direct compression method. The results of precompression parameters (Angle of repose, Carr's index and Hausner ratio) were in acceptable range as per the specifications given in IP. Prepared tablets were evaluated for thickness, uniformity of weight, hardness, friability and results are well within IP limits. Out of nine formulations, the tablets which contain 40 mg of CP (F9) had shown low wetting time 8.22 sec, low in vitro disintegration time 5 sec, high water absorption ratio 180% and highest drug release profile i.e. 99.81% which releases the drug within 12 minute. The different kinetic models revealed that drug release followed zero order and diffusion mechanism.

Key Words: Telmisartan, Superdisntegrents, Mouth dissolving tablets and Bioavailability

## PREPARATION AND EVALUATION OF STARCH CITRATE: A NEW MODIFIED STARCH AS DIRECTLY COMPRESSIBLE VEHICLE IN TABLET FORMULATION

## Venkateswara Rao Sadhu and S. Naga Mounika

Telmisartan (BCS class II drug) is an angiotensin II receptor antagonist (ARB) used in the management of hypertension, it exhibit low and variable oral bioavailability due to its poor solubility and dissolution rate. The objective of the study is to prepare and evaluate starch citrate, a new chemically modified starch, as a directly compressible vehicle for tablets. Starch citrate prepared by reacting starch with citric acid at elevated temperatures, was found to be a white, crystalline and non-hygroscopic powder. In the micromeritic evaluation, the angle of repose and compressibility index values revealed the excellent flow characteristic of starch citrate prepared. Starch citrate was insoluble in water and aqueous fluids of acidic and alkaline p<sup>H</sup>s. It also exhibited good swelling in water. It has no pasting or gelling property when heated at 100°C in water for 30 min. Telmisartandirect compression tablets were formulated employing starch citrate as directly compressible vehicle by direct dissolution requirement for official standards. Hence, the starch citrate, a new modified starch was found to be a promising directly compressible vehicle for the preparation of tablets by direct compression method.

Key Words: Hypertension, Starch citrate, Direct Compression and Dissolution rate.



## FORMULATION AND EVALUATION OF BUCCOADHESIVE ITRACONAZOLE TABLETS BY USING SOLID DISPERSION

VenkateswaraRao Sadhu and D. Sowmya

In the present study mucoadhesive buccal tablet of Itraconazole was prepared. By enhance its solubility of Itraconazole was enhanced by complexing Itraconazole with  $\hat{a}$ -CD in 1:1 molar concentrations. Six different formulations of tablets of Itraconazole containing the polymers and diluents in various combinations were prepared by direct compression method and characterized for swelling studies, surface pH, mucoadhesive properties and *in-vitro* release studies. All the formulations showed the satisfactory results bioadhesive performance, surface pH, physical & mechanical properties. The swelling index was proportional to content of HPMC K<sub>4</sub>M & carbopol as bioadhesive polymers. The surface pH of all tablets was found to be satisfactory, & close to neutral pH, hence, buccal cavity irritation should not occur with these tablets. Drug release and drug diffusion from the tablets were depended on the ratio of polymer and type of the diluent used in the formulation. Tablets containing Carbopol, HPMC K<sub>4</sub>M and spray dried lactose as diluent (F1 to F3) had the maximum percentage of *in-vitro* drug release than compared to tablets containing mannitol as diluents (F4 to F6). The formulation F1 can be considered as promising buccoadhesive tablets containing inclusion complex of Itraconazole with  $\hat{a}$ -CD providing first order drug release over period of 8 hours.

Key Words: Mucoadhesion, Buccal tablets, In-vitro release and Sustained drug delivery.

## ACID NEUTRALIZATION CAPACITY AND COST EFFECTIVENESS OF ANTACIDS SOLD ACROSS VARIOUS RETAIL PHARMACIES IN VIJAYAWADA Venkateswara Rao Sadhu and B. Chamundeswari

**Background:** Antacids are commonly prescribed drugs for treatment of Gastroesophageal reflux disease (GERD). These are manufactured and marketed by various multinational and local companies. There is need for evaluating the cost effectiveness and efficacy of these antacids as a matter of public concern.

**Aim & Objective:** To determine and compare the acid neutralization capacity of antacid preparations sold across various retail pharmacies in Vijayawada. The objective is to find out unit cost and effectiveness of antacid with respect to its composition and manufacturer.

**Methods:** Six different antacid suspensions & tablets manufactured by different companies were evaluated. The oraganoleptic properties, viscosity, pH and particle size of each antacid was determined and compared with each other. The acid neutralizing capacity was determined by using titrimetric method. Cost effectiveness was done by calculating the cost per ml of antacid. Efficacy was evaluated based on acid neutralizing capacity of antacid preparations.

**Results:** Suspension Medicaine<sup>®</sup> having higher acid neutralization capacity (30.22 mEq) with unit cost Rs.0.52/ml and tablet Acigene<sup>®</sup> having the highest ANC (2.235 mEq) value with unit cost of Rs.1/tablet should be the most effective brands as these products provide the highest neutralization capacity with the lowest dose and price.

**Conclusion:** It was concluded that, antacid suspensions have good acid neutralization capacity than antacid tablets medications. Cost effectiveness studies are beneficial in improving the prescribing pattern. It benefits both doctor as well as patient.

Key Words: Antacids, Acid neutralizing capacity, Cost effectiveness and Titrimetric method.



## SYNTHESIS, CHARACTERIZATION AND EVALUATION **OF STARCH ACETATE AND CALCIUM STARCH: MODIFIED STARCH** POLYMERS FOR CONTROLLED RELEASE OF NIFIDIPINE

Venkateswara Rao Sadhu and V. Bhavani

Nifedipine, a widely prescribed anti hypertensive drug belongs to BCS class II and exhibit variable oral bioavailability due to its poor solubility and dissolution rate. The objective of the present study is to develop Nifedipine control release matrix tablets by wet granulation method using starch acetate & calcium starch, as release retard polymers. The starch acetate was synthesized by reacting potato starch with acetic anhydride using aqueous NaoH as the catalyst at elevated temperature. Calcium starch was synthesized by gelatinizing potato starch in the presence of NaoH and cross linking by treatment with calcium chloride. Both was insoluble in water and has no pasting or gelling property when heated in water. In the micromeritic evaluation, the angle of repose and compressibility index values revealed the excellent flow characteristics. All the physical properties studied indicated that both starch acetate & calcium starch is a promising pharmaceutical excipient in tablets. Nifedipine release from formulation contained starch acetate (F1 - F3) was showed better controlled release than formulation contained calcium starch (F1 - F3). The amount of polymer in the tablet increases, the drug release was decreases. The formulation F3 containing starch acetate as controlled release polymer showed better controlled release of 68.38 % after 12 hours. Good linear relationship was observed between percent polymer and release rate (K<sub>0</sub>). From the results of experiments, the starch acetate polymer is suitable for the design of oral controlled release of Nifedipine.

Key Words: Starch acetate, Calcium Starch, Matrix tablets and Controlled release.

## FORMULATION AND EVALUATION OF FAST DISSOLVING ORAL FILM OF LEVOCITRAZINE DI HYDROCHLORIDE BY SOLVENT **CASTING TECHNIQUE**

Venkateswara Rao Sadhu and R. Jvothi

Levocetirizinedihydrochloride is a class of third generation antihistaminic agent. It is an active enantiomer of cetirizine; its principal effects are mediated via selective inhibition of H1 receptor. Fast dissolving films have been played an important role in the current pharmaceutical research. They have convenience and ease of use over other dosage forms such as orally disintegrating tablets and immediate release tablets. In the present research, rapidly dissolving films of Levocetirizinedihydrochloride were developed using low viscosity grades of HPMC E-5LV & HPMC E-15LV as film forming polymers. To decrease the disintegration time of formulations crosspovidone was used as disintegrating agent. Levocetirizinedihydrochloride is moderately bitter drug, taste masking was achieved by use of sweeteners and flavours. The films of Levocetirizinedihydrochloride were prepared by solvent casting method using dichloromethane and methanol as solvents. The prepared films (F1 -F6) were evaluated for weight variation, thickness, drug content, folding endurance, surface pH, in vitro disintegration time and *in-vitro* drug release. Formulation F1 was considered optimum which contained drug and HPMC E5 in 1: 3 ratios. The in vitro disintegration time of the optimized formulation was found to be below 25 seconds respectively. The prepared films exhibited good integrity and thickness. In vitro dissolution studies were performed as per the FDA dissolution guidelines for about 10 minutes, the optimum formulation released complete drug within 10 minutes. FTIR studies showed no drug polymer interaction.

Key Words: Antihistaminic Agent, Film forming Polymers, Disintegrating Agent, Solvent Casting Method and In-vitro drug release.



## FORMULATION AND *IN-VITRO* EVALUATION OF MICROBALLOONS AND IMMEDIATE RELEASE GRANULES OF AN ANTIULCER DRUG FOR GASTRORETENTIVE DRUG DELIVERY Sk. Arifa Begum and G. Aruna Bhargavi

The intention of the present research work was to develop once daily controlled release floating microballoons of ranitidine hydrochloride by emulsion solvent evaporation method using different ratios of ethyl cellulose and variable stirring speeds for GRDDS along with the loading dose granules with superdisintegrants. The immediate release granules were prepared by wet granulation method using crosscarmellose sodium, crosspovidone as superdisintegrants and evaluated for their flow properties and release studies. The granules showed good flowability and in vitro release of ranitidine HCl IR granules was found to be 92.13% - 100.03%. The prepared floating microballoons were characterized for SEM, drug content, entrapment efficiency, percentage yield, floating ability, buoyancy percentage, in vitro drug release, release kinetics and stability studies. FTIR studies revealed that there was no interaction with the polymers. SEM revealed that the microballoons had smooth surface and hollow cavity in the middle. The entrapment efficiency of microballoons was found to be 40.12% to 55.09% and the drug release from the microballoons in 0.1N HCl was found to be 41.02% - 70.12% up to 10 h. The prepared floating microballoons of ranitidine HCl showed percentage buoyancy in the range of  $71.24\% \pm 1.6$  to  $87.92\% \pm 1.6$ 0.9. The release kinetics study revealed that the prepared microballoons were best fitted to the zero order kinetics and indicated that the drug release obeys diffusion - controlled mechanism. The optimized formulation of floating microballoons (F3) was stable for 3 months. Thus, it was concluded that GRDDS of ranitidine HCl loaded microballoons along with IR granules loaded capsule was an ideal drug delivery system for ulcer protective activity as both controlled and immediate release drug delivery systems.

*Key Words:* Buoyancy percentage, emulsion solvent diffusion method, floating microballoons, gastro retentive drug delivery system, ranitidine hydrochloride.

## DESIGN AND *IN-VITRO* EVALUATION OF GASTRORETENTIVE DELIVERY OF SALBUTAMOL SULPHATE FOR NOCTURNAL ASTHMA Sk. Arifa Begum and O. Anusha

The objective of the present research work was to prepare and evaluate floating pulsatile drug delivery systems of salbutamol sulphate. The prepared floating pulsatile delivery system consisted of three different parts: a core tablet, containing the active ingredient, an erodible outer shell and a top cover buoyant layer. The rapid release core tablet (RRCT) was prepared by using superdisintegrants along with active ingredient. Dry coating of optimized RRCT was done by using different grades of hydroxyl propyl methyl cellulose (HPMC) E5, E15 and E50 and upper most buoyant layer was prepared with HPMC K4M or HPMC K15M, citric acid, sodium bicarbonate. The developed formulations were evaluated for their physical characterization, drug content, *in vitro* disintegration time, *in vitro* drug release profile (lag time), floating lag time and floating time. Based on these evaluation parameters, it was found that the optimized floating pulsatile release formulation (FPRT – HPMC E15 (F2)) showed floating lag time of 7 min, floating time of greater than 12 h and release lag time of 4.5 h. The FPRT – HPMC E15 (F2) formulation showed compliance with chronotherapeutic objective of nocturnal asthma.

Key Words: Chronotherapy, floating pulsatile release tablet, salbutamol sulphate, lag time, floating time.



## PREPARATION AND CHARACTERIZATION OF COLON SPECIFIC MICROSPHERES OF MESALAMINE FOR ULCERATIVE COLITIS

Sk. Arifa Begum and K. Sri Teja

The objective of the present research work was to prepare and evaluate mesalamine microspheres for colon targeting. Mesalamine microspheres were prepared by emulsion solvent evaporation method using different ratios of mesalamine, ethyl cellulose and cellulose acetate phthalate; stirring speed (500 rpm) and emulsifier concentration (0.2% w/v). Cellulose coated mesalamine microspheres were evaluated for surface morphology, particle size analysis, micromeritic properties, percentage yield, drug content, % entrapment efficiency, *in vitro* drug release studies, kinetic and stability studies. Drug release studies carried out in acidic medium (0.1N HCl) for 2 h, in phosphate buffer pH 6.8 for 3 h and in phosphate buffer pH 7.4 for 7 h. In acidic medium, the release rate was much negligible; however, the drug was released slowly at phosphate buffer pH 6.8. Microspheres prepared by using drug: polymer (mesalamine: ethylcellulose) ratio 1:1, stirring speed 500 rpm, and 0.2% w/v concentration of PVP K30 (emulsifier) was found to be suitable for colon specific release of mesalamine due to negligible drug release in gastric medium, minimum drug release in the upper intestinal region and maximum drug release in the colonic region (95.1% at the end of 12 h for formulation F1 compared to others). Therefore, it was concluded from the investigation that ethyl cellulose microspheres were promising carriers for colon specific drug delivery of mesalamine in the treatment of ulcerative colitis.

Key Words: Mesalamine, ethyl cellulose, cellulose acetate phthalate, colon targeted drug delivery system.

## DESIGN, DEVELOPMENT AND CHARACTERIZATION OF ACECLOFENAC LIPOSOMAL GEL USING THIN FILM HYDRATION TECHNIQUE Sai Krishna Putta and B. Nagini

Aceclofenac is non-steroidal antiinflammatory drug and is effective in the treatment of reumatoid arthritis and osteoarthritis. The aim of the study is to prepare aceclofenacliposomal carrier for the treatment of arthritis that is capable of delivering the drug to the specific target site by topical route with soya lecithin and cholesterol using thin film hydration technique. All liposomal formulations were evaluated for its particle size, drug content, % entrapment efficiency and *in vitro* diffusion studies. Among them formulation (F4) containing 80 mg of soya lecithin and 20 mg of cholesterol showed better drug release. Optimized formulation (F4) was converted to the gel formulation by usingcarbopol 934 as gelling agent at 2%, 2.5% and 3% concentration. A control formulation of marketed product pristaflam cream® was used for comparison. The developed liposomal gel formulations were characterized for its *in vitro* drug diffusion and *ex vivo* permeation through rat skin.Liposomal gel (G1) prepared with 2.0 % of carbopol 934 was found to have better the skin permeation and deposition(89.12 % in 12 hr) compared to marketed gel. Liposomal dispersion(F4) and gel (G1) were subjected to stability studies, where the results were found to be stable.

Key Words: Rheumatoid Arthritis, Thin Film Hydration Technique, Liposomes, Liposomal Gel.



## PREPARATION AND CHARACTERIZATION OF ATORVASTATIN CALCIUM MICROSPHERES WITH NOVEL POLYMERS USING EMULSION SOLVENT DIFFUSION METHOD

## Sai Krishna Putta and K. Swathi

Atorvastatin is a selective competitive inhibitor of HMG CoA reductase inhibitor used in the treatment of hyperlipidemia. It is one of the best drugs of choice with a limitation of solubility and dissolution rate limited bioavailability (14 %). So, the present study is aimed to increase the solubility and dissolution rate of atorvastatin by converting into microspheres using emulsion solvent diffusion technique. Polymers like Kolliphor P407, Gelucire 43/01, HPMCE15 and PVPK90 were incorporated to further improve the dissolution rate. Total of 16 formulations were prepared and evaluated for flow properties, particle size, drug content, solubility & *in vitro* drug release studies. Results revealed that atorvastatin microsphere (ATR-M) prepared with emulsion solvent diffusion technique improved the solubility and dissolution rate by two folds compared to pure drug. Further improvement was observed with all polymers at 0.05 % concentration and the influence of polymers on the solubility and dissolution rate was in the order of Kolliphor P407 > Gelucire 43/01 > HPMCE15 > PVPK90. The formulation containing 0.05 % Kolliphor P407 (ATR-F4) showed the maximum solubility (0.747 µg/ml) and dissolution rate (99.99 % in 30 min) among the prepared. The finalized formulation (ATR-F4) was studied for SEM and DSC; results revealed that microspheres surface was found to be porous with particle size of 26.75 µm without any chemical instability. All the formulations were studied for release kinetics and found to follow first order kinetics.

Key Words: Atorvastatin, Kolliphor P407, Gelucire 43/01, HPMCE15 and PVPK90.

## FORMULATION AND EVALUATION OF GASTRO RETENTIVE FLOATING TABLETS OF PROPRANOLOL HCI USING NATURAL POLYMERS

## Sai Krishna Putta and K. Sindhu

The present investigation is concerned with design and development of floating tablets of propranolol HCl to control the drug release for prolonged period of time to reduce dosing frequency and also dose related side effects. The tablets containing propranolol HCl release the drug in controlled manner. Formulations were developed by using different natural and synthetic polymers. The formulated tablets were characterized for weight variation, hardness, drug content uniformity, swelling index, thickness, diameter, and *in vitro*drug dissolution study. The best *in-vitro* drug release profile (100 % in 12 hr) was achieved with the formulation F5 which contain HPMC, PVP and Gum kondagogu. Stability studies for the best formulation was performed under accelerated conditions showed no significant differences in physical appearance, swelling index, drug content and *in vitro* drug release studies. The finalized formulation F5 was studied for different kinetic models and results confirmed that the drug release follows zero order kinetics and mechanism of drug was found to be non - Fickian diffusion.

Key Words: Propranolol HCl, Floating Tablets, In vitro Drug Release, Swelling Index.



## DESIGN AND DEVELOPMENT OF METFORMIN HYDROCHLORIDE MICROSPHERES BY USING IONIC GELATION TECHNIQUE Sai Krishna Putta, Ch. Poojitha Sai, K. Manasa, T. Harika, K. Lalitha, P. Poornima, and P. Venkata Durga Devi

The present investigation dealt with design and development of metformin hydrochloride microspheres by using ionic gelation technique with natural polymers *viz*. xanthane gum, gum karaya and gum kondagogu as mucoadhesive polymers, sodium alginate as cell forming polymer and calcium chloride as cross linking agent. Total of nine formulations (mucoadhesive microsphers of Metformin HCl) were prepared using ionic gelation technique with natural polymers at different proportions. All the nine formulations imparted good flowability as indicated by angle of repose (24.37° to 26.56°), Carr's index (14.44 to 19.81 %) and Hausner ratio (1.14 to 1.25). Particle size was found within the size range of 620 – 887 µm. Micro encapsulation efficiency was found to be in the range of 70.84 % - 86.58%, showed effectiveness of the process. Swelling index and dissolution rate was found to be influenced by concentration of polymer. *In vitro* dissolution studies revealed that gum karaya and gum kondagogu processes all requisite qualities required for controlling the drug release. Formulation F6 showed good control over drug release over 10.5 hr was treated best formulation among the existing. *In vitro* wash off test gave the evidence of mucoadhesive charecteristics, in turn depends on concentration of polymer. *Key Words:* Swelling index, Microencapsulation, Ionic Gelation, Mucoadhesive and Encapsulation Efficiency.

## ASSESSMENT OF SELF MEDICATION AND CHRONIC DISEASES IN RANDOMLY SELECTED POPULATION LIVING IN AND AROUND VIJAYAWADA

D. Santhi krupa, Be BeThahera, M. Anusha, G. Rodhay, M. Tejasri, M. Alekhya, R. Padamasree and N. Taringiniin

Self-medication is a well known concept spreading across the world. In our country, Tamil Nadu ranks first followed by Punjab, Haryana, Kerala. This present study focus on "Assessment of self medication and chronic diseases in randomly selected population living in and around Vijayawada" to determine the prevalence of self medication, their consequences, benefits, to determine the highly prevailing chronic disease, to implement preventive measures and educate people about the diseases. The population included in this study are 300 respondents selected by systematic random sampling irrespective of their gender, education and life style as there are no such studies conducted before in this area. Based on the study we can conclude that in the randomly selected respondents, most of the respondents are following self medication especially females, educated respondents irrespective of their age enclosing ease and convinence as the major reason. The prevalence of chronic diseases is more in females than in males and diabetes as the highest prevaililing disease. Major source of drug information are through internet and advertisements in TV. The awareness on drugs used for minor ailments is increased but the people should be educated about the self medication. Majority of respondents are following doctor specifications during drug administration, maintaining first aid kit in the home. This all shows that there is pronounced development in the self health care system and drug awareness among population of different socio-economic factors living in the study area but they need to be educated more about self medication and management of chronic diseases to decrease their progression.

Key Words: Self Medication, Respondents, Management, Educated.



## AVICENNIA MARINA: A PROSPECTIVE ANTI-CANCER AND ANTI-OXIDANT PLANT FROM KRISHNA MANGROVE, ANDHRA PRADESH

#### Mukesh Kumar Das and Md. Nowrin Sultana

Cancer is a dreaded ailment throughout human history, changed its grasp as humankind advanced industrially and technologically. The rationale behind the study is aimed to evaluate the *in-vivo* anti cancer and anti-oxidant property of the plant *Avicennia marina* a Krishna mangrove collected from Machilipatnam, Andhra Pradesh. Six groups of adult Swiss male albino mice, each containing six mice were used for experiment. The haematological status of DAL bearing mice were carried by taking Blood from each mouse and the white blood cell count, red blood cell count, haemoglobin, protein were determined and we observe that MEAM treatment prevented the fall in haemoglobin and maintained the normal values of WBC, RBC and differential cell counts. The extract have anti angiogenic property and prevent from metastasis and also decreased the tumor volume in MEAM treated animals in dose dependant manner. The antioxidant activity of extract was carried out by assessing the biochemical parameters such as tissue lipid peroxidation (LPO), superoxide dismutase (SOD), catalase(CAT), glutathione STransferase (GST) and treatment with MEAM (400 mg/kg) and 5-FU (20 mg/kg) effectively reduced the oxidative stress in DAL bearing mice and there by restored the activities of enzymic antioxidants. *In-vitro* anti-oxidant activity of the extract is performed by DPPH assay and the IC50 of the test extract was found to be 499.01\g/ml. In conclusion it was proved that *Avicennia marina* possess significant antitumor activity in *in-vivo* system and anti-oxidant activity.

Key Words: Cancer, Avicennia marina, Daltons Ascites Lymphoma, Antioxidant activity, Anti-tumor activity.

## ANTIULCER AND ANTIDIABETIC ACTIVITY OF CUUCUMA LONGA LEAVES AQUEOS EXTRACT ON STRESS INDUCED ULCERATIVE DIABETIC RATS

A. Jayarami Reddy, V. Anusha, B. Anupama, B. L Prasanna,

P. S. S. Lakshmi, V. Swathi and K. Sri Bhargavi.

Herbal medicines have great importance in maintaining the health of every person. Demands of Herbal medicines are increasing in both developed and developing countries due to growing recognition of natural plants being lesser no. of side effect, easily available in surrounding place with low coast. Different parts of the plant have differ rent active substances and these active substances may vary in their extent of activity and concentration. Ulcerative diabetic diseases are a major and worldwide very common problem in every age of person. The effect of curcuma longa leaf extract administration on gastric acid secretion and ulcer in diabetic rats was studied. curcuma longa leaf extract (200 mg/kg b.w.) was administered to both alloxan-induced diabetic and control groups orally for 21 days. Gastric acid secretion was measured and ulcer was induced using cold restrent stressl. Histological changes were observed in the stomach. Basal and stimulated acid secretion in diabetic control rat was significantly (P < 0.01) decreased when compared to *curcuma longa* leaf extract treated diabetic group and control. Gastric acid secretion in diabetics than control while reduction in gastric secretion by ranitidine was similar compared with control. curcuma longa leaf extract treatment significantly (P < 0.05) reduced ulcer index in diabetic group and increased mucus weight when compared with diabetic group. The mean body weight of diabetic rats treated with curcuma longa leaf extract was comparable to the control. The blood glucose level was significantly (P < 0.01) reduced in diabetic group given *curcuma longa* leaf extract ( $8.9 \pm 1.8$ mMol/L) compared to the diabetic control  $(32.2 \pm 2.1 \text{ g})$ . It is concluded that *curcuma longa* leaf extract is beneficial in improving gastric acid secretion and protects against ulceration in alloxan-induced diabetes mellitus in rats due to its antioxidant potential.

Key Words: Ulcerative diabetes, Curcuma Longa Leaf Extract, Ranitidine and Glebenglamide



Polvcvstic

Ovarv

## MILLIONS OF WOMEN WITH POLYCYSTIC OVARIAN SYNDROME (PCOS): UNDIAGNOSED... UNTREATED... UNSUPPORTED ... THIS MUST CHANGE!!!!

**PCOS**, formerly known as the Stein-Leventhal syndrome, is a condition where at least two of the following occur and often all three :

- At least 12 tiny cysts (follicles) develop in your ovaries.
- The balance of hormones is altered and make more than normal of the male hormone testosterone.
- You do not ovulate each month or not ovulate at all.

## FACTS

- 1 out of 10 women have PCOS
- PCOS is the number 1 cause of Infertility
- Many with PCOS don't have ovarian cysts
- Many women live with too much testosterone and other androgens
- A Women's ovulation can be delayed or completely stopped by PCOS.
- PCOS is a genetic condition, even men carry the genes for PCOS

SYMPTOMS

Insulin resistance

Normal Ovary

• Low self esteem, anxiety and depression

Follicle developmen stopped

Multiple immature

- Over weight, obese
- Bone and muscles get enlarged

Ovulation

- Moderate to severe acne
- Growth of hair in face, abdomen and chest
- Significant hair lose, baldness
- Hypothyroidism
- Type 2 diabetes, high BP and cholesterol

## CAUSES

- Increased insulin level
- Luteinizing hormone (LH)

Hereditary factorsOverweight or obese

## **DIAGNOSTIC TESTS**

- Follicle stimulating hormone (FSH)
- Luteinizing hormone (LH)
- Testosterone
- Estrogens

- Anti-Mullerian hormone (AMH)
- Lipid profile
- Blood glucose
- Insulin
- Pelvic ultra sound
- Pelvic laparoscopy



## TREATMENTS

There is no cure for PCOS. However, symptoms can be treated and health risks can be reduced.

Aim to lose weight : helps to reduce insulin

Acne: Topical or antibiotics

Fertility treatment: Clomifene

Hair growth: Laser electrolysis, waxing, shaving Treating period problems: Progestogen hormone

Insulin sensitizing medicine: Metformin

## HERBAL REMEDIES

- Chaste tree
- Black cohosh
- Red raspberry (Rubus idaeus) leaf
- Rrosemary (Rosmarinus officinalis)
- Feverfew (*Tanacetum parthenium*)

- Chaste tree
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## **SUPPLEMENTS**

• Vitamin D, calcium, vitamin B12, inositol

**TAKE HOME:** PCOS cannot be prevented. But early diagnosis and treatment helps prevent long term complications such as infertility, metabolic syndrome, obesity, diabetes and heart disease

> Mrs. Pradeepa Prason Asst. Professor Dept. of Pharmacology



## AN OVERVIEW ON BONE CANCER

**Bone cancer describes a malignant tumor of bone that destroys healthy bone tissue.** Bone cancer is divided into primary and secondary bone cancer. Primary bone cancer first forms in the cells of bone and secondary bone cancer starts elsewhere in the body, eventually spreading to bones.

## **Types of Primary bone cancers:**

**Osteosarcoma:** Osteosarcoma is the most common and the third most type, usually develops in children and young adults.

Ewing sarcoma: It usually develops in the pelvis, or thigh bone.

**Chondrosarcoma:** It usually develops in adults. It starts in the cartilage cells and moves on to the bone. **Symptoms of bone cancer:** Swelling, pain, gets worse and continuous over time.

#### Risk of developing bone cancer:

- Risk is high in Paget's disease
- Hereditary retinoblastoma
- Li-Fraumeni syndrome

#### Diagnosis of bone cancer: Diagnostic Tests include

- CT (or) MRI scan
- Positron emission tomography (PET)
- Bone biopsy
- Treatment of bone cancer

The type of treatment for bone cancer depends on several factors, including what type of bone cancer it is, where it is located, how aggressive it is, and whether it is localized or has spread. There are three approaches to treat bone cancer.

**Surgery:** The surgeon may take some bone from another part of the body to replace lost bone (bone graft), or an artificial bone may be put in. Limb-sparing surgery, also known as limb salvage surgery means that surgical intervention occurs without having to amputate the limb.

**Radiation therapy:** High-energy X-rays radiation destroy the DNA inside the tumor cells, Some of the radiopharmaceuticals approved for use in the United States include Strontium-89, Samarium-153, Radium-223.

**Chemotherapy:** Chemotherapy involves the use of cytotoxic medication to prevent cancer cells from dividing and growing. Bisphosphonates work by slowing down the action of osteoclasts will prevent the spreading of the tumor.

**Immunotherapy:** Mifamurtide, Denosumab consists monoclonal antibodies that block specific molecules CTLA4, PD1, OX40, LAG3, and TIM3, which then takes the brakes off the immune system and allow it to fight the cancer cells.

**Myeloablative therapy:** High-dose chemotherapy that kills cells in the bone marrow, including cancer cells. It lowers the number of normal blood-forming cells in the bone marrow, and can cause severe side effects. Myeloablative chemotherapy is usually followed by a bone marrow or stem cell transplant to rebuild the bone marrow.

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## ESSENTIAL DIETARY REQUIREMENTS FOR WOMEN

Women tend to need fewer calories than men, but require certain vitamins and minerals in higher quantities. The essential dietary requirements include nutrients such as iron, calcium, magnesium, vitamin D, and vitamin B9.

**Iron:** Iron helps to create the hemoglobin that carries oxygen in the blood. It's also important to maintain healthy skin, hair, and nails. *For adolescent women aged 14-18, the U.S. Food and Nutrition Board (FNB) recommended daily amount is 15 mg (27 mg if pregnant, 10 mg if lactating).* High iron foods include liver, sunflower seeds, nuts, beef, lamb, beans, whole grains, dark leafy greens (spinach), dark chocolate, and tofu.

**Calcium:** Calcium plays a major role to build healthy, stronger bones and teeth, to regulate the heart's rhythm, to ensure nervous system functions properly. Calcium deficiency can lead to, or exacerbate, mood problems, weakened bones or osteoporosis. *For adult women aged 19-50, the USDA recommended daily allowance of 1,000 mg/day.* Good sources of calcium include dairy products, leafy green vegetables, certain fish, oatmeal and other grains, tofu, cabbage, green beans, garlic, and sea vegetables.

**Magnesium:** Magnesium increases calcium absorption from the blood into the bone, body can't utilize calcium without it. *The USDA recommended daily allowance for magnesium is 320 to 400 mg/day.* Good sources include leafy green vegetables, broccoli, cucumber, green beans, celery, and a variety of seeds.

**Vitamin D:** Vitamin D is also crucial to the proper metabolism of calcium. 600 IU vit D is required daily. Vitamin D can be obtained from about half an hour of direct sunlight, and from foods such as salmon, shrimp, vitamin-D fortified milk, cod, and eggs.

**Vitamin B9:** Folate or vitamin B9 is another nutrient that many women don't get enough of in their diets. This greatly reduces the chance of neurological birth defects when taken before conception and during the first few weeks of pregnancy. Folate can also lower a woman's risk for heart disease and certain types of cancer. And in later life during menopause, folate can help in estrogen synthesis. *The U.S. FDA recommends that all women and teen girls who could become pregnant consume 400 mcg of folate or folic acid daily.* 

**Healthy Fats:** It's important to choose the right types of fat. When possible, trans fats and saturated fats should be replaced with healthier monounsaturated and omega-3 fats. In women omega-3 helps to reduce risks of heart diseases, cancer, menstrual pain, osteoporosis and rheumatoid arthritis. Although nuts are high in fat, the fat they contain is mainly healthy unsaturated fat.

**Protein content:** Adult women need at least 45 grams of protein per day. It's best to get a variety of different types of lean protein such as those found in beans, skinless poultry, eggs, fish and sea food.

These nutrient requirements can be altered based on the physiological conditions of women.

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# IMPACT OF PLASTIC ON ENVIRONMENT

Plastic waste is a major environmental and public health problem in India, particularly in the urban areas. Plastic shopping or carrier bags are one of the main sources of plastic waste in our country. Plastic bags of all sizes and colors dot the city's landscape due to the problems of misuse and overuse and littering in India.

### Environmental hazards due to plastic

Littering of the landfills and other open spaces with plastic garbage becomes unhygienic and ugly, once they are used; most bags go into landfill or rubbish tips. Each year, more and more bags are ending up littering the environment. Once they become litter, plastic bags find their way into our waterways, parks, beaches and streets. And, if they are burned, they infuse the air with toxic fumes.

- Littering of plastic leads to spreading of water borne diseases and increasing the cost of sewage maintenance systems.
- Soil fertility is also affected due to plastic material as it forms part of manure remaining in the soil for years without natural degradation.
- Death of animals due to suffocation, stomach and intestine related diseases is a common feature mostly in developing economies due to improper disposal of plastic food bags that are eaten by these animals
- Global Warming
- Air pollution
- Problem of scarcity of landfills
- Water Pollution

### Solutions and preventive measures

Though commodities made of plastic are handy, it is time to become aware of the harm that plastic causes to life on Earth. Before the picture turns even uglier, it is better that you take some effective preventive measures to reduce this type of pollution. These changes might be gradual and even less appealing against the problem; but taking small steps can greatly contribute to the reduction of plastic pollution. It is time for us to take some preventive steps and ensure a better life for the future generations.

To bring a decline in its usage, start using paper or cloth bags for shopping and other purposes as much as possible and avoid bringing plastic bags at home.

Ensure proper disposal of plastic.

Plastic which is disposed of can be recycled and used in many different ways such as for tote bags, wallets or pouches. There are biodegradable plastic bags available, which can help to a considerable extent.

### Recycling

Making new products out of the waste materials is called recycling. All types of plastics cannot be recycled. We can save the environment if we can recycle those articles that can be recycled. Plastic recycling involves the process of recovering scrap plastic and this waste plastic is then reprocessed to form new materials that may be different from their original state. Recycling plastic has many advantages.

- Use of nonrenewable fossil fuels is reduced by recycling as manufacturing new plastic materials require more of these fuels.
- Consumption of energy is also reduced as already prepared plastic is recycled for new use.



- Amount of plastic that reach the landfill sites are greatly reduced. This will eliminate land pollution to some extent.
- Carbon emissions are reduced as manufacturing units emit more carbon. Cutting back on global warming, preventing air and water pollution and saving our energy resources, are the reasons to save our planet from plastic hazards.

### Conclusion

Presently India and world are facing a problem with the plastic pollution. Control on plastic pollution requires effective policy involving effective monitoring. Banning of plastic use should be voluntarily done. Plastic waste contains harmful chemicals such as bisphenol A and some phthalates. A harmonised industry-wide effort is needed to communicate information about chemicals used in plastic, along with public education about the chemicals.

### TO SAVE THE PLANET SAY NO TO PLASTIC USE ONLY BIO-DEGRADADLE BAGS

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# BRCA1 and BRCA2: Identifying Hereditary Breast Cancer in Patients at Risk

The hereditary trait of breast cancer affects around 5% of all the cases and at 10% in ovarian cancer patients. The first gene associated with breast cancer was identified in 1994 and was named breast cancer gene 1 (BRCA1); and the second gene, isolated a year later, was called BRCA2. Both the genes belong to tumour suppressor class and generally maintain the genetic content of the cell. They help in the maintenance of the normal cell growth and development, preventing any instability. However, when a mutation occurs in these genes, it may result in the hereditary breast and ovarian cancers with 5 times higher chances of developing these conditions. Mutation in the BRCA1 implies a 39 to 46% lifetime risk chances of developing ovarian cancer when compared to 12 to 20% for BRCA2 mutation. The same applies for men and also speaks for other forms of cancer like fallopian tube cancer and peritoneal cancer, prostate cancer, pancreatic cancer or acute myeloid leukaemia in both men and women making it obvious that both men and women have the potential to transmit the mutated gene. Similarly, ethnicity plays a part in the development of breast cancer and people of the Ashkenazi Jewish decent and Norwegian, Dutch, and Icelandic populations are at a higher risk. Apart from BRCA1 and BRCA2, other genes like CHD1, TP53, PTEN and STK11 also play a very small part in the occurrence of hereditary breast cancer.

Clinicians are well oriented to identify people at higher risk of ovarian or breast cancers by testing for specific genes and also help them for risk reduction with frequent surveillance, screening with breast mammography,



ultrasound, or magnetic resonance imaging, medication or surgery in the high risk cases. Patients can also be educated about the possible risk of passing a mutation to their children and The American Society of Clinical Oncology also recommends these tests in many conditions. Genetic testing is usually recommended for people with 20 - 25% chance of carrying a mutant and the risk factors are outlined in Table-1.

### **Table-1: Genetic Risk Assessment Indications**

Personal history of breast and ovarian cancer at any ageBreast cancer before age 500varian cancer at any age2 primary breast cancers in 1 person at any age2 or more breast cancers in a family, 1 under the age of 50Women of Ashkenazi Jewish ancestry with breast or ovarian cancer at any ageMale breast cancer at any ageWomen with a close relative with a known BRCA1 or BRCA2 mutation

Close relative is defined as mother, sister or daughter.

BRCA testing may not detect the presence of cancer, but may identify the mutations on the BRCA1 and BRCA2 genes if present. The test is usually performed by taking a blood or saliva sample of the patient and performing a DNA analysis to identify harmful changes that signal a higher risk for breast and ovarian cancer. If there is mutation in the genes, the patients test positive and fall under the risk category for hereditary breast cancer.

Apart from the risk criteria, various other factors like age, obesity and alcohol consumption also contribute to the development of ovarian and breast cancers. Periodic evaluation with mammograms, pap smears, pelvic exams and physical examinations are recommended for early detection and to incorporate effective treatment strategies in women. Tamoxifen reduces the risk of developing breast cancer by about 50 percent in women who are at increased risk of the disease. Some small studies have shown that tamoxifen may help lower the risk in women specifically with a BRCA2 gene mutation.

Obese people have a higher risk of breast cancer when compare to women who engage in regular physical activity. Similarly, alcohol consumption also evidenced in the occurrence of breast cancer. Women using hormone replacement therapy or hormonal birth control for more than 10 years are at a risk of developing breast cancer. However, the effect of these factors on people with known BRCA1 and BRCA2 mutations remains unknown as of now.

Evaluating the risk factors for developing breast cancer should be made periodic and a part of routine check up. Research shows that early detection may provide better chances at initiating preventive interventions and decreasing the risk of hereditary cancer.

Mrs. Greeshma Vundavalli Asst. Professor Dept. of Pharmacology



# IMPORTANCE OF COMMUNICATION SKILLS FOR PHARMACY PROFESSIONALS

Take advantage of every opportunity to practice communication skills so that when important occasions arise, you will have the gift, the style, the sharpness, the clarity and the emotions to affect other people.

- Jim Rohn, American author

Communication Skills play a vital role in the career of a Pharmacy professional. Advanced Pharmacy Practice Experience APPE must be a part and parcel of every Pharmacy student's college studies, as the training prepares provides them an opportunity to involve themselves in patient care activities. As health care practitioners they should participate in patient counseling, interviewing and in creating awareness. As such, they should tune their interpersonal skills as they need to move with doctors and other colleagues. The skills in turn, will help them to counsel the patients on medication and ensure the maximum use of treatment. Besides, the crucial role of verbal communication skills, written skills are also essential as they need to draft recommendations to the concerned physicians on drug therapy problems. Especially, professionals in community pharmacy, dispensing and hospital pharmacy must adopt and practice effective communication styles to function as responsible health care providers. They should reach out to their mentors, take suggestions from them and evolve themselves into better functioning roles.

The skills are of utmost importance for the pharmacy professionals in establishing a positive patient-pharmacist relationship. Introducing themselves with the patient and counseling them on the usage and dosage of drugs can be done only when they develop an empathetic understanding of the patient. Their open ended questions and constant interaction with the patients may lead the latter to respond to the treatment quickly and effectively. Active listening strategies, being open and flexible to the queries of the patients, paying attention to them and trying to receive and interpret their non-verbal gestures are some of the aspect of Kinesics which a health care practitioner must cultivate.

Good association between a pharmacist and physician also is necessary for the successful career of a pharmacist. Their subject knowledge and the art of communication help in forming a cordial relationship during the process of the treatment of the patient. If they face any conflict, they can easily overcome it if they possess strong communication skills, assertiveness, resilience and emotional intelligence.

Therefore, to excel as pharmacy practitioners, students must sharpen their oral and written communication skills. They can ensure this by participating in various college activities like literary, National Pharmacy Week Celebrations and writing articles for college newsletters and magazines.

Mrs. Vishnu Vandana Devi. V. Asst. Professor of English



# AMAZING HUMAN FACTS

- 1. Every atom in our body is billions of years old.
- 2. Our tongue is the strongest muscle in our body.
- 3. We have no sense of smell when we are sleeping.
- 4. The average number of dreams in our life is about 1500 per year.
- 5. The human body and banana fruit have similarities-50% of DNA are same as in banana.
- 6. The human body has an iron content to make a 3 inch long nail used for wall.
- 7. The pumping pressure of a human heart can squirt blood to 30 feet away.
- 8. One out of 8 persons snores while sleeping and 1/10<sup>th</sup> grinds blood to 30 feet away.
- 9. New born babies are colour blind and they can see only black and white.
- 10. Dark coloured persons wrinkle later than white coloured persons while they give shake hand.
- 11. Our eye ball weighs about 28 grams.
- 12. We read 25% slower from computer screen than from paper.
- 13. The brain is more active during night than on the day.
- 14. 80% of our brain is made of water. The brain itself cannot feel pain.
- 15. The brain grows faster up to the age of 5.1 years.
- 16. In 7 seconds food from mouth reaches the stomach.
- 17. The amount of blood in women and men is about 4.5 litres and 5.6 litres, respectively.
- 18. Honey is easily digested because it is already digested by bee.
- 19. Our hair and finger nails grow even after our death.
- 20. The only bone without joint is hyoid bone in our neck.
- 21. Our bony skeleton changes gradually every 10 years.
- 22. In after noon our foot swells little bigger.
- 23. We can read 150-200 words per minute. Our average vocabulary is 5000-7000 words.
- 24. The life span of a human hair is 3 to 7 years on average.
- 25. We get a new stomach lining every 3 to 4 days
- 26. The teeth start growing 6 months before you born.
- 27. After eating too much you hear less sharp.
- 28. Eyes are always same in size but nose and ears never stop growing.
- 29. It takes 17 muscles to smile and 43 muscles to frown (making an expression of displeasure).
- 30. We are about 1cm taller in the morning than in the evening.
- 31. Bone is 5 times stronger than the steel. Our body gives enough heat in 30 min to boil half gallon of water
- 32. Humans usually have 70,000 thoughts per day.
- 33. Right handed people live, on average, 9 years longer than left handed people.
- 34. Our body shed particles about 6,00,000 per hour.
- 35. Sleeping after taking lunch is dangerous because metabolism rate gets slow and cause B. P, diabetes and heart attack.

**Ms. B. Gnananjali** II B. Pharmacy (B Sec)



# GLAUCOMA

Glaucoma is a condition in which a group of ocular disorders characterized by progressive optic neuropathy resulting in a characteristic appearance of the optic disc and a specific pattern of irreversible visual field defects. In its early stages, glaucoma may present few or no symptoms and can gradually steal sight without warning. In fact, most people affected by glaucoma do not know they have it. If left undetected and untreated, glaucoma can lead to blindness. One of the major risk factors for glaucoma is elevated Intra Ocular Pressure (IOP) or pressure inside the eye (Normal IOP is 11 to 21 mm of Hg by Schiotz Tonometer). A healthy eye produces a fluid called humour or aqueous humour, at the same rate at which it drains. High pressure occurs when the drainage system is blocked and the fluid cannot exit at a normal rate. This increased IOP pushes against the optic nerve causing gradual damage, which may result in vision loss, usually starting with the peripheral, or side vision. Increased eye pressure of often associated with gradual damage to the nerve fibres that make up the optic nerve. IOP is currently the only treatable risk factor for glaucoma.

### **Risk factors**

- People with a family history of glaucoma
- People over 40 years of age
- People with diabetes
- People who have used steroids for a long period of time
- People with physical eye injuries

### Diagnosis

A comprehensive eye check-up by an ophthalmalogist is the best way to detect glaucoma. A complete eye examination includes measuring Intra Ocular Pressure (IOP) and as it will be having tubular vision. Additionally, visual field tests are used to evaluate the peripheral vision of each eye. IOP can be measured with the help of Schiotz tonometer.

### Management

While there is no cure for glaucoma, elevated IOP is currently the only treatable risk factor. It is important to treat aggressively with the most effective products such as prescription eye drops that can provide maximum reduction of elevated IOP with long term control. In some cases, surgery can also help. It is important to consult an ophthalmalogist who can evaluate glaucoma progression and treatment options.

**Md. Reshma Sulthana** II B. Pharmacy (A Sec)



# **BIONIC LENS**

BIONIC LENS is of one of the world's most advanced intraocular lenses. It is capable of restoring quality vision at all distances, without glasses, contact lenses or corneal refractive procedures and even without vision problems. A bionic lens can be the end of eyeglasses as well as contact lenses. The use of bionic lens allows patients to have vision up to 3 times better than 20/20. It can also be a solution to eye problems such as near and far sightedness, astigmatism and cataracts. It requires to be implanted into the eye albeit, the procedure only takes 8 min. The operation is similar to surgery for treating cataract that involves removal of lens inside the eye and replacement of it with an artificial lens. This procedure is painless and does not require the use of anesthesia or an overnight stay at the hospital. The lens is placed in the eye using a saline solution-filled syringe, in just about 10 sec. The bionic lens, which is initially folded like a tattoo for implant, unravels over the eye immediately correcting the eye sight. The implant makes images sharper and there is no time lag when the focus is shifted. The lens was designed to provide beyond-perfect vision, protect the patient's natural lens from damage and decay. People do not have to wait for the time when they would have to rely on glasses because getting the bionic lens is a preventative move. The patients implanted with bionic lens would not suffer from cataracts as the natural lenses of the eyes, which are prone to decay, will be replaced with artificial ones.

It appears that users do not also have to worry about the safety of using the bionic lens because it is made of materials that do not cause biophysical changes within the eye. The Bionic lens can be implanted for individuals who are 25 years old or above because eye structures are not yet formed until this age. The quality of the vision will not deteriorate over time and can last 100 years.

Ms. K. Lakshmi & Ms. G. Harshitha II B. Pharmacy (B Sec)

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# CANCER TREATMENT BY JAIN'S COW URINE THERAPY

Cancer cells are cells in a part of the body which start to grow out of control. Cancer cells continue to grow and form new abnormal cells. Cancer cells can also invade other tissues that normal cells can't. The process of cancer spreading is called metastasis. Ayurvedic Jain's cow urine therapy helps in cancer treatment by preventing the further growth of cancer cells. It also helps in revival of damaged cells of affected organs. Cow urine is scientifically proven to enhance the antimicrobial effects of antibiotic and antifungal agents. The various pharmacological activities of Jain's cow urine are anti-tumour, antioxidant, analgesic, antibacterial, antispasmodic, antistress and immuno stimulator, in the treatment of hernia, anti rheumatic, antiureter ulcer, antileprotic, in the enlargement of spleen, antiepileptic, in treating syphilis and in removing blood impurities etc. Jain's cow urine is researched and re established to have anticancer pharmacological activities as per the modern science by CCRAS research wing of AYUSH (Government of India). Ayurvedic medicines made of cow urine are dispensed in the form of capsules and syrups. Benzoic acid, Hexanoic acid and with ammonia content ranging between 5 -15mg/L and optionally along with antioxidants, is the composition useful for protecting or repairing DNA from oxidative damages. It estimates the amount of folded DNA in a sample. The above composition is mixed to the said sample either before or after the exposure of the DNA to the oxidatively DNA damage agent to determine percentage folded DNA in the mixture showing protection of DNA from oxidative damages. Cancer patients who are treated by modern medicines have a life expectancy of 6-8 months. Patients treated with ayurvedic Jain's cow urine have a good quality of life and improve life expectancy of 2 to 6 years. Cow urine has an ability to improve efficacy and absorption of anticancer drug of modern medicine (Allopathy).

> Ms. Roshni Sekhar & Ms. P. L. Sreeja II B. Pharmacy (A Sec)



# DEMONETISATION

On the 8<sup>th</sup> of November, 2016 when the Sun had descended below the horizon and the light of day had completely faded, when people were returning back home from a long day at work, a misty light of a new economy was brewed over the country. All Rs500 and Rs1000 banknotes of the Mahatma Gandhi Series ceased to be legal tender in India from 9 November 2016. The government claimed that the demonetization was an effort to stop counterfeiting of the current banknotes allegedly used for funding terrorism, as well as a crack down on black money in the country. The move was described as an effort to reduce corruption, the use of drugs, and smuggling. However, during the period of demonetization, banks and ATMs across the country faced severe cash shortages. Also by following P. M. Narendra Modi's announcement, the BSE SENSEX and NIFTY 50 stock indices crashed for the next two days.

### Past Demonetisation Programmes in India and its advantages:

- India has carried out demonetization exercises twice before, in 1946 and 1978.
- In Jan 1978 episode, currency worth INR 1.46 bn (1.7% of total notes in circulation was demonetized. Of this INR 1.0 bn (or 68%) was tendered back.
- In 1978, the value of demonetization was very small (only 0.1% of GDP).
- However, the 2016 demonetisation efforts cover 86% of the total currency in circulation (11% of GDP)

The term demonetization has become much more than a household name since the old Rs. 500 and Rs. 1000 notes were pulled out of circulation. As per dictionary demonetization means "ending something (*e.g.* Gold or Silver) that is no longer the legal tender of a country". We need to understand that there is much more than the literal meaning to the word. 80% of India's labor force is employed in the informal sector, which comprise of 45% of the GDP of our country. Over 60% of population of India lives in below the international poverty threshold line of 1.9\$ per day. Since our economy is an under banked economy, present demonetization move, would no doubt cause a severe social experiment, across the segment of our population. At the first place and on a short term basis this move would benefit the government, which shall effectively deploy its resources to percolate the impact to the poor and needy of our country.

Ms. A. R. Sravanthi II Pharm. D

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# **KEYS TO SURVIVE**

- When you have to watch drama you sit in the first row, but for a movie you prefer sitting last....soap is prepared with oil but to remove the same oil from your hands we use soap...its strange but a fact.
- When we face a problem, we feel like we are lost in our lives but, it takes lot of effort to face it and make it as a turning point.
- There are only two people in this world who live the happiest. A person who is mad and a child....you need madness to reach your goal and to feel happy after you reach it you need to be a child.
- Even a key is prepared while preparing the lock. Always believe that every problem has a solution. Unlock the key with your confidence.
- A word is powerful than a bullet. A word has the power to break relationship. Person needs to act like a needle and thread to make a relationship, but not act like scissors and cut them.
- It doesn't mean you don't have problems if you are a happy person, but you are capable of solving those.
- You need to be there for a friend in need.
- A person who accepts his mistakes and asks for forgiveness, he is brave and strong and a person who has the capability to forgive others flaws and mistakes is the strongest.
- A problem might be a foe but if you are strong enough to face it with a smile, it is never difficult to solve them. Failure gives you experiences and an experience gives you wisdom. Accept success when you succeed and learn from your failure, failure is the best teacher, learn and accept the experiences, you will definitely win one day.
- There are 24 hours a day for each person. A person who just dreams about the goal and doesn't work hard, he stays where he is. A person utilizes all of his time to succeed and works to achieve it, reaches his goal.
- Burning desire to reach the goal, self-confidence and hard work helps you to reach your goal. Every step counts. You might not succeed, but you have never failed in trying. You will not stop trying and someday you will be a winner.

"LIFE MIGHT BE HARD TO CLIMB, BUT THE VIEW ON THE TOP IS GREAT"

Ms. B. Sirisha III B. Pharmacy (B Sec)



# **SMART PHONE - SMART CHEMISTRY**

Could you imagine a day without your smart phone? Not only itself, but it is making the users also smarter day by day. Amazing you can surf the internet, listen to music and text your friends with something that fits in the palm of your hands. None of the things would be possible without chemistry and every time you use your smart phone you are putting chemistry into action.

### **SMARTPHONE-SMART CHEMISTRY**

If you are wondering what chemistry has to do with smart phones just look at the periodic table of the 83 stable elements, at least 70 of them can be found in smart phones.

- An average smart phone contains up to 62 different types of metal.
- Single I-phone contains 8 different rare earth metals
- Phone cannot vibrate without neodymium and dysprosium.
- Rare earth metals are used in electronic devices.

### SMART PHONES DISPLAY

When shopping for a cell phone (or) smart phone the single most important feature that people look for is display. The following method is used, where k+ salts, Na+ ions in a glass migrate large number of K+ ions are squeezed. This compresses the glass & makes it strong and finally Indium Tin Oxygen puts the touch in touch screen

### IN HANDS BEHIND A TOUCH SCREEN

It is a screen that gives response to your touch

- Because our skin is electrical conductor and primarily due to the combination of salt & moisture on the fingertips creating an ionic solution, a tiny bit of electricity flows through us every time you use the touch screen on your phone.
- Chemicals Used : Praseodymium, Terbium, Yittrium & Gadolinium {Produce the colors on smart phones}
- Chemicals used in the Battery : Lithium, Cobalt, [oxide for +side, carbon/graphite -side]
- Silicon is used to prepare micro chips in the phone, along with arsenic phosphorous antimony.

### "THANKS TO THE CHEMISTRY AND INNOVATION THE POSSIBILITIES ARE LIMIT LESS WITH CHEMISTRY"

Ms. S. Jyothsna III B. Pharmacy (B Sec)



# A NEW VACCINE FOR HIV

The biggest ever trial of a new vaccine hailed as a potential final nail in the coffin of HIV has begun in South Africa. Researchers hope that the vaccine, presently named as HVTN702, could finally lead to a cure for HIV/AIDS, which directly affects 37 million globally and kills over 1 million each year.

5,400 sexually active South African men and women aged between 18 and 35 will take part in a test of the drug, which was developed by *Sanofi Pasteur* and *GSK*. The trial is being jointly funded by the US governments National Institute of Allergy and Infection Diseases (NIAID), the US Military, the South African Medical Research Council and the Bill & Melinda Gates Foundation.

Anthony S Fauci, at the direction of NIAID, said if deployed alongside our current armoury of proven HIV prevention tools, a safe and effective vaccine could be the final nail in the coffin for HIV. Even a moderately effective vaccine would significantly decrease the burden of HIV disease over time in countries and populations with high rates of HIV infection, such as South Africa.

The trial will test the efficacy and possible side effects of the vaccine, which is modified version of a previous vaccine known as RV144. This was tested in 2009 in a trial of 16,400 people in Thailand and shown to be effective in 31 percent of people. This success, although limited, gave scientists hope that they were close to finding a clinical way of preventing HIV, which can currently be treated through a lifelong drug programme but not easily prevented.

The new vaccine includes a number of modifications to the one used in the Thailand trial and has been tailored to target a strain of HIV that is common in South Africa. Researchers hope to prove it is at least 50 percent effective – a significant increase on the Thai trial and, crucially, the threshold that is likely to secure a license to manufacture the drug commercially.

Dr Glenda Gray, president of the South African Medical Research Council, said: The people of South Africa are making history by conducting and participating in the HIV vaccine efficacy study to build on the results of the Thai trial.HIV has taken a devastating toll on South Africa, but now we begin a scientific exploration that could hold great promise for our country. If an HIV vaccine were found to work in South Africa, it could dramatically alter the course of the pandemic.

(Source: http://www.independent.co.uk/news/science/new-hiv-vaccine-south-africa-final-nail-coffin-aids-a7443526.html)

Ms. B. Madhavi

I M. Pharmacy



# NANOROBOTICS AND THEIR PHARMACEUTICAL APPLICATIONS

Nanorobots are tiny machines designed to perform specific tasks repeatedly and with precision at nano scale dimensions. Nanorobots deal with the design, simulation, control and coordination of robots with nano scale dimensions.

**Design:** These are assembled with micro scale instruments or robots. Biological nanorobots are made of biological components such as proteins, DNA's.

**Composition:** They will have diameter about 0.5 to 3 im and will be constructed out of parts with dimensions with range of 1 to 100 nm. It mainly consists of elements such as carbon, hydrogen; nitrogen, sulfur, fluorine, silicon, etc. used for special purposes in nano scale gear sand other components.

### **Applications:**

- Medical nanorobots monitor diabetes by controlling nutrient concentrations in human body including blood glucose levels in diabetic patients.
- Nanorobots can be applied in chemotherapy to combat cancer through precise chemical dosage administration.
- A similar approach like chemotherapy could enable nanorobots to deliver anti-HIV drugs. They have been termed as "PHARMACYTES".
- The specified goal is to be able to destroy tumors tissue in such a way as to minimize the risk of causing or allowing a reoccurrence of growth in the body.
- It increase fat deposits from the artery walls and leaving them in a bloodstream should allow the body's natural processes to remove the overwhelming preponderance of material.
- Nanorobotics has strong potential to revolutionize healthcare, to treat disease in future.
- Nanoengineered prosthetics, increased miniaturization; increased prosthetic strength & weight reduction; improved biocompatibility.
- Retinal, auditory, spinal and cranial implants
- Cellular manipulation, manipulation of cellular systems, persuasion of lost nerve tissue to grow; growth of body parts.



### **Conclusion:**

Nano technology will change health care and human life more profoundly than other developments. We strongly believe the emerging of new technologies into operational nano machines will go hand in hand with stimulation ideality.

Ms. Dharani Sri Vidya & Ms. J. Bindu Madhuri III B. Pharmacy (A Sec)



# CITIZEN'S ROLE TO CONTROL POLLUTION

In the *Mahabharata*, a snake starts poisoning a pond with its venom and cattle drinking the polluted waters die. Krishna, a small boy saves the pond from contamination by killing the snake.

Today we have millions of industries rising their venomous hoods and polluting the land and water with a variety of highly toxic and poisonous substances. Tragedy is that there are no Krishnas! It is high time for us to act immediately, for justice delayed is justice denied. "Keeping quiet also is a sin" Vidura says that he became a sinner for knowingly sitting in silence while Draupadi was dragged in to the court for disrobing. In this regard, I would like to urge one and all that pollution is not a problem of the Government but a problem facing every individual and unless he/she involves himself/herself in spirit and deed, the problem cannot be solved. May I therefore appeal to you to lend your helping hand to strike a death blow to this pollution phantom? Let us take an oath to protect the environment, to protect ourselves, to protect the planet by adopting the methods to control pollution. Let us plant more and more trees, say no to plastic, cut down private and individual transport systems and minimize the usage of electronic appliances.

Let us adopt sustainable life styles.

**Ms. Mounika Sarojini** I B. Pharmacy (A Sec)

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# YOU MAKE YOUR OWN WAY!!!

Your beliefs become your thoughts Your thoughts become your words Your words become your actions Your actions become your habits Your habits become your values Your values become your destiny Said by Gandhi of yesterday If you follow them today They will show you a better way You will be the leader of The rising day!!!

> Ms. M. Geethanjali II B. Pharmacy (B Sec)



# LIFE.....

My small view on life, hope you all will enjoy reading this......

Four simple letters with a very deep and true meaning. We take life and everything around us for granted that we hardly realize life's worth.

When we are busy running around competing with others and take time to do something, reach on time, achieve the best, beat him, we get lost and forget to enjoy the special gift and that is life. After all a privileged few get this opportunity of life and a few select the gift of human life. You being able to read this or I being able to write this for you to read is in itself one of the things you've been gifted with...and, only a blind /physically disabled person can tell how lucky you are to be able to do it. They know life's worth and they show respect to it unlike you and because they know how it feels when you lack something!!!

We go 'awwww' when we see a beautiful painting of a sunset or the lake and the countryside or that beach on a canvas. Have you ever stood still in your balcony to see the sunset? How beautiful it looks and that one minute gives such calm and peace to your tired mind. Or did you ever look out of the train / bus/ car window and have seen the nature/ people outside?

We go to planetariums to view the stars, but only if we would go to the terrace at night, lie down and gaze at open beautiful sky above!!!

Why do we always look for happiness in big things in life? Why not in small little moments those make up our life?

"Life is what happens to you, while you're busy making other plans ".....indeed.

Then why don't we cherish those little moments in life? As they say good things come in small packages ...... life's beauty is in those small and special moments which make us go "ahh!!"...... those real moments in life where we share that one piece of cake among five friends or offering your seat to that old aunty in the bus gives you inner joy. We crib about going to college and never think that atleast we don't have to sell anything at the signal. Nobody said life would be flawless, but the promised life would be worth it.

"Live life to the fullest, as they say it is not the years in your life but the life in your years that matter....."

Ms. P. Vishnu Priya II Pharm. D

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### FIRST LABORATORY GROWN MUSCLE

Growing the muscle from pluripotent stem cells; that is, "blank" cells that can grow into any other cell, rather than cells that are already on the way to becoming muscle cells. The new kind of lab grown muscle will allow the study of disease and testing new medications in a safe setting outside the human body. The contracting muscles were grown for myogenic precursor cells- cells that have progressed beyond the early stem cell phase, but had not quite yet grown into full muscle tissue. These cells were increased 1000-fold, seeded into a 3D scaffold and nourished with a culture gel full of nutrients to encourage growth. The resulting muscle tissue was then tested with a variety of external stimuli to see how closely it resembled human tissue.



Fig. 1: First contracting muscle grown in laboratory

For the first time, lab-grown muscle tissue robustly contracted in response to electrical stimuli. The nerve signal Path ways-which would allow the nerves to activate the muscle were intact and functional. It was also demonstrated that the effect of drugs on the lab-grown tissue matched the effect seen in human patients. They tested a variety of pharmaceuticals, such as statins, which are used to lower cholesterol, and cleanbuterol, an off-label athletic performance enhancer. The statins caused abnormal fat accumulation at high doses, while the cleanbuterol had a narrow beneficial window for increased contraction-both of which effects have been documented in humans.



Fig. 2: Microscopic view of lab grown muscle

This could allow future physicians to tailor pharmaceutical treatments to individual patients. This method can be used to provide personalized medicine to patients. "We can take a biopsy from each patient grow many new muscles to use as test samples and experiment to see which drugs would work best for each person. If we could grow working, testable muscles from induced pluripotent stem cells, we could take on skin or blood sample and never have to bother the patient again."

Ms. D. Roopa & Ms. M. Sravya II B. Pharmacy



# TOP FOUR MEDICAL TECHNOLOGY INNOVATIONS

The FDA last year announced a new Medical Device Innovation Consortium (MDIC) charged with simplifying the process of designing and testing new technologies. Here are four emerging technologies.

**1. MELAFIND OPTICAL SCANNER:** With the most deadly form of skin cancer, melanoma, a huge number of dangerous-looking moles are actually harmless, but has always been impossible to know for sure without an invasive surgical biopsy.Melafind optical scanner is not only for definite diagnosis but rather to provide additional information so that a doctor can use in determining whether or not to order a biopsy.



Fig. 1: Melafind Optical Scanner

**2. ELECTRONIC ASPIRIN:** For people who suffer from migraines, cluster headaches and other chronic excruciating head orfacial pain two aspirins in the morning haven't found a sphenopalatine ganglion [SPG]. So a tool for blocking SPG signals at the first sign of headache. This system involves permanent implant of a small nerve stimulating device in the upper gum on the side of the head. The lead tip connects with SPG bundles, so signals stimulate SPG nerve and block pain causing neurotransmitters.



Fig. 2: Electronic aspirin



**3. TRANSDERMAL BIOSENSR:** Diabetes self-care is a pain-literally. It brings the constant need to draw blood for glucose testing, the need for daily insulin shots and the heightened risk of infection from all that poking. Echo Therapeutics is developing technologies that would replace the poke with a patch. The transdermal biosensor is found which reads blood analyses through skin without drawing blood. The technology involves a handheld electric toothbrush-like device that removes just enough top-layers skin cells to put patient's blood chemistry within signal range of a patch-borne biosensor. The sensor collects one reading per minute and sends the data wirelessly to a remote monitor.



Fig. 3: Transdermal biosensor

**4. MEDICAL ROBOTS:** The medical robots can patrol hospital hallways on more routine rounds, checking on patients in different rooms and managing their individual charts and vital signs without direct human intervention. The device is a mobile cart with two-way video screen and medical monitoring equipment.



Fig. 4: Medical Robots

Ms. Lavanya Eli II Pharm. D



# PROGERIA

### Introduction

- **Progeria is an extremely rare genetic condition. The word "progeria" comes from the Greek word** *"progeros"* **meaning prematurely old. It is also known as** Hutchinson-Gilford Progeria Syndrome (HGPS).
- It is characterized by an appearance of accelerated aging in children.
- While there are different forms of Progeria, the classic type is Hutchinson-Gilford Progeria Syndrome, which was named after the doctors who first described it in England: in 1886 by Dr. Jonathan Hutchinson and in 1897 by Dr. Hastings Gilford.
- Other Progeroid syndromes include Werner syndrome, also known as "adult progeria" which does not have an onset until the late teen years, with a lifespan into the 40's and 50's.

### Causes

- HGPS is caused by a mutation in the gene called *LMNA* (*also known as* Lamin A) in which a point mutation takes place in the LMNA gene, wherein the cytosine is replaced with thymine.
- *The LMNA* gene (a dominant gene) produces a lamin A protein, which is holds the nucleus of a cell together.
- The abnormal lamin A protein that causes Progeria is called *progerin*. Progerin makes the nucleus unstable. That cellular instability leads to the process of premature aging and disease in Progeria.
- It is almost never passed on from an affected parent to child, as affected children rarely live long enough to reproduce.

### Features / Signs / Symptom

- Although usually born looking healthy, most children with Progeria begin to display many characteristics of Progeria within the first 2 years of life.
- The signs include abnormal growth, loss of body fat and hair, aged-looking skin and stiffness of joints.
- As they get older, they suffer from osteoporosis, generalized atherosclerosis such as Stroke, cardiovascular disease.
- The average lifespan for Progeria patients is about 13 years, although some children live up to 20 years.
- The development of symptoms is comparable to aging at a rate eight to ten times faster than normal.
- The patients do not develop conditions that are commonly associated with aging, such as cataracts (caused by UV exposure) and osteoarthritis.
- Progeria is estimated to affect one in 8 million newborns worldwide, according to the **National Institutes** of Health (NIH).



### Diagnosis

- A genetic test for LMNA mutations can confirm the diagnosis of progeria.
- In the past, doctors had to base a *diagnosis of progeria* solely on physical symptoms such as skin changes and a failure to gain weight, aged looking skin.

### Treatment

- Although no treatment has yet proven effective, most treatment options have focused on reducing complications such as cardiovascular disease with artery bypass surgery or low-dose aspirin.
- Growth hormone treatment has been attempted.
- The use of Morpholinos has also been attempted in order to reduce progerin production.

### Drugs

- Rapamycin (it can minimize the phenotypic effects of progeria fibroblasts, degradation of progerin in affected cells and reduction of insoluble progerin aggregates formation).
- The cancer drug, Lonafarnib can improve weight gain and other symptoms of progeria.

Ms. A. Mounika II B. Pharmacy (A Sec)



When I was very Young, MY life was very Smooth and Peaceful but Suddenly it had changed due to an unprecedented Storm. It was in My 8th Standard and at a tender age of 14, My father left me, my Mother and Sister Stranded due to the financial Problems caused by a Severe business loss. He disappeared Suddenly and was now where near to find, we were Starving without Proper food for a mouth. To make our ends meet, we used to sell our

household items. Hy 10 years old Younger sister liked him Very Huch then and used to question me often where our father was. we cried a lot, my sister used to cry even more and handling them and staying Strong was a Very difficult task for me then, we made a call to our aunty and uncle, Explained the Situation. They were Very responsive and came to us the Very next day

and offered us to take us with "Vijayawada. But Some People who gave loan to our father stopped as and didn't let us leave till we promised them to return the money in 6 Honths. Fore going our furniture, we Reached Vijayawada on 22nd Dec. 2007 with few of our clothes. we Spent nearly 6 Honths at our aunts home and we had to discontinue our studies due to the pressure and Scoldings from our Relatives. Then in a sudden turn of events, our father had come to as after 6 Honths. He was Very Stared and wasn't Speaking anything about his actions, Careless nature towards us-we hoped that every thing would be normal again but fate had its say

bur fate, we wanted to Hove on with the financial assistance from my aunt, I was able to Complete my S.S.C in the Year Doog. And my Sister had also completed her S.S.C in the year Doll, I completed Hy Intermediate in Doll with the assistance from Some of our aurits and cousins. In the mean, while, our father used to visit and suddenly leave us, not much caring about us. Going ahead with my Studies, I Joined Bopharm and my Sister was Studying her Intermediate. one fine day, probably result of our Prayers, our father returned again, and started earning for us, became the bread winnor for our family. I started my Paet-time Job while studying Bepharm, 3rdyear and how I stand as a certified Pharmacust and an earning woman in our Family. Facing So many hurdles and obstacles, our life has Sestored to normal.

"My life until now hasn't been a Rosy bed and won't be but Standing Strong in tougher times "is what makes our living happies and woithles"

Jam MD. Meherunnisa of Mopharmacy and Year from "Vijaya Institute of Pharmaceutical Sciences for women" & this is My Story. "Some things take time [Ittook & Years for I believe in Stay Patient and stoy Positive, Things will get.

This article received first prize in **My Story** competition conducted by IWN, Confederation of Indian Industry, Andhra Pradesh.

Ms. Md. Meherunnisa II M. Pharmacy

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