The Nest

Nurturing sharp minds

TOWARDS A HEALTHY LIFE

MUMBAI EDUCATIONAL TRUST
विद्याधनं सर्वधन प्रधानम् ।

A Student Council Presentation (2012 - 2013)
MET Institute of Pharmacy (Degree)
Bhujbal Knowledge Centre, Mumbai

THE MET LEAGUE OF COLLEGES
MET
AS SHARP AS YOU CAN GET

An intelligent mind is
like a blade
that lies innocently
in its wrapper.
You cannot feel
the sharpness
till you expose the edge.

What's Inside

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Our Faith

न चौर हार्यम् नच राज हार्यम्।
न भातृभाज्यम् नच भारकारी।।
व्यये कृते वर्धते एव नित्यम्।
विद्याधनं सर्वधन प्रधानम्।।

Knowledge can neither be stolen by a thief,
nor snatched by a king.
It is indivisible unlike ancestral property,
it never burdens the bearer,
it multiplies manifold when offered to others.
Knowledge is the supreme form of wealth.

Our Vision

To shape professionals, to conquer the present and the future challenges to the socio economic fabric of our society, by institutionalising search, development, research and dissemination of relevant knowledge through structured learning systems.

Our Mission

To evolve, develop and deliver dynamic learning systems to equip professionals with conscience and commitment to excellence and courage to face business challenges.

MET League of Colleges

Bhujbal Knowledge Centre, Mumbai

Just a stone's throw away from the Arabian Sea, is an institution that is creating waves. Because, it is quite simply, a cut above the rest. The MET League of Colleges is a conglomerate of premiere educational institutions, driven by a single-minded focus on imparting quality education to make students sharp. Established in 1989, with a mission to redefine the system of education, Mumbai Educational Trust (MET) is a professionally managed, multi-disciplinary and multi-faceted oasis of knowledge. Its premiere educational institutes conduct university accredited and autonomous programmes. The grant of the ISO 9001:2008 certification is an acknowledgment of the institution's capability to deliver professional education that meets the highest standards of professionalism worldwide. All this, to help young professionals face the challenges of life. And make their mark in the corporate world.

It is MET's commitment to impart value-based education across all levels of society that has catapulted it to an NGO in Special Consultative Status with the United Nations (ECOSOC). The institution has today carved a niche for itself amongst the premiere educational institutes in the country. Located at Bandra Reclamation in the heart of Mumbai, India's financial powerhouse, and spread over 2,00,000 sq.ft., the institute has an enviable infrastructure that plays a pivotal role in imparting quality education.

Bhujbal Knowledge Centre, Mumbai

- Institute of Management
- Institute of Mass Media
- Asian Management Development Centre
- Centre for Insurance Training, Research & Development
- Institute of Pharmacy
- Institute of Medical Sciences
- Institute of Information Technology
- Institute of Computer Science
- Institute of Distance Learning
- Institute of Software Development & Research
- Institute of International Studies
- Institute of Alternative Careers
- Rishikul Vidyalaya
- Knowledge Explorer - Publishing Division

Bhujbal Knowledge City, Nashik

- Institute of Management
- Institute of Pharmacy
- Institute of Engineering
- Institute of Technology (Polytechnic)
- Institute of Information Technology
- Institute of Distance Learning

MET Institute of Pharmacy

The MET Institute of Pharmacy (MET IOP) was established in the year 1993 with the two-year Diploma programme in Pharmacy (D.Pharm.) recognised by the Directorate of Technical Education. The four-year Bachelor's programme in Pharmacy (B.Pharm.) affiliated to the University of Mumbai was started in the year 1994. Recently M.Pharm.Sc. (QA) affiliated to the University of Mumbai was introduced in the year 2011. The MET IOP is approved by the Pharmacy Council of India, New Delhi and AICTE, New Delhi. Recently B.Pharm. got accredited by NBA too.

The Institute pursues the philosophy of perpetual acquisition of knowledge. Apart from academic curriculum, our policy has been to provide value based education and to expose the hidden potential of the students. Our students have free access to the computer facilities and are provided with LCD projector in the class room for their seminar presentation. Our aim is not to make the students mere job-seekers but to make them the architects of their future.

The Institute provides a quasi-corporate ambience for the students. MET has state-of-the-art classrooms, a well-stocked dedicated pharmacy library and fully loaded pharma laboratories. A hi-tech convention centre for seminars and workshops. Recreation areas to unwind. No efforts have been spared to create an environment that encourages students to push the limits of their minds.

Continual exposure to the recent developments in the world of pharmacy through industry interaction programmes keep students at the cutting pharma edge. Unique pedagogy makes them so sharp that they have been consistently making a mark at the University of Mumbai.

Over the years, several distinction holders and University toppers have graduated from our institute. Our students not only excel in academics but they have been champions at various cultural and sports competitions. The average result each year is above 90%. Our alumni are doing us proud all over the globe by being leaders in their choice of vocation.

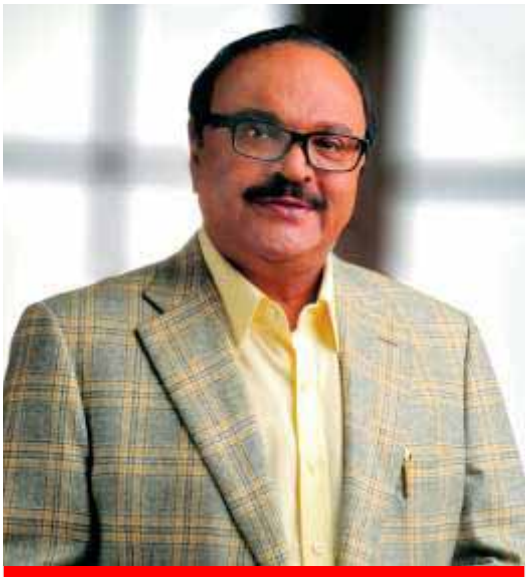
Our Vision

MET Institute of Pharmacy has the vision to be recognised as one of the leading institutes of pharmacy education in the nation, and envisages to produce world-class pharmacists who are equipped to cater to the present and future needs of the profession and the society, at large.

Our Mission

MET Institute of Pharmacy pledges to impart quality education in the field of pharmacy and is committed to ensure all-round development of the students, enabling them to make valuable contribution to the various facets in the field of pharmacy and contribute to improving the quality of life.

From the Chairman's Desk



Chhagan Bhujbal
Chairman, Mumbai Educational Trust

I am pleased to note the latest issue of 'The Nest', dedicated to the cause of Pharmacy education. It presents an overview of the year gone by and the offerings of the students and faculty of MET Institute of Pharmacy.

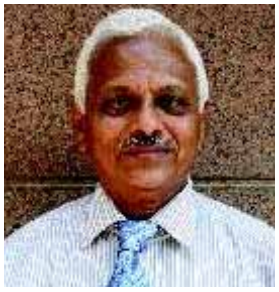
As you would note from the contents, the students here excel not only in academics but also continue to dominate the cultural and co-curricular arena both within and outside the institute. This obviously is the result of the ceaseless efforts of our faculty who offer multi-dimensional inputs to our students motivating them to go beyond the classroom.
'The Nest' mirrors an all-round personality development effort at the institute and the positive impact of the student community.

I am pleased to present to you a unique survey undertaken by students and faculty to gauge societal awareness towards the dreaded disease especially its occurrence and control. Besides, this issue contains critical information pertaining to various diseases prevalent in society.

I hope and pray that our students continue to excel both in professional and co-curricular fields and get the due recognition for their contribution to societal wellbeing.

Chhagan Bhujbal
Chairman
Mumbai Educational Trust

The Director Speaks



Dr. U. B. Hadkar
Director, MET IOP

The staff members of MET Institute of Pharmacy began the academic year 2012-13 on a very happy note. Our final year B.Pharm student Ms. Saniya Malim was the university topper in the academic year 2011-12. She was felicitated by our respected trustees Shri Chhagan Bhujbal and Shri Pankaj Bhujbal. She received a gold medal at the hands of Chief Guest - Shri Pranab Mukherjee - President of India, Shri Prithviraj Chavan - Chief Minister of Maharashtra, Governor of Maharashtra - Hon. Shri K.Sankaranarayanan, Vice Chancellor - Dr. Rajan Welukar, Guest of Honour. This reflects on the quality of education imparted at the MET Institute of Pharmacy. I congratulate Ms. Saniya Malim and our staff members for the glorying success.

The staff members at the MET Institute of Pharmacy have been encouraged to pursue their higher studies. Our teachers Mrs. Radhika Raheja and Dr. Mrs. Vijaya Patil have completed their PhD program. This would not have been possible without the support from our trustees. The Alumni meet was held this year on 12th Jan 2013. I appreciate the efforts put in by the teachers in – charge Dr. Mrs. Vijaya Patil and Ms. Priyanka Joshi for making the event a grand success. It was a good experience to interact with our alumni in USA through video conferencing. I take this opportunity to thank our beloved and respected trustees Shri Chhagan Bhujbal, Mrs. Meena Bhujbal, Shri Sameer Bhujbal, Shri Pankaj Bhujbal for the support and encouragement we receive from them. We revive our energies through these festivals.

I thank Mr. J.G.Irani and Mr. Ashish Srivastava (Marcom Dept.) for helping and guiding our students to shape this magazine "The Nest", and also thank the editorial board of this magazine. Let us follow a simple principle in our life: "Do good, be good and help those who do good."

From the Principal's Desk

Dr. Abha Doshi
Principal,
MET IOP (Degree)

The year 2013 started with the much awaited MET Alumni Meet that was graced with the presence of more than 120 alumni. We are extremely proud of all our former students who are doing exceptionally well in their chosen field. Words started flowing readily and the stories made all of us nostalgic. We still have to do our level best to make this union stronger.

"The best way to predict our future is to create it" and I would like to tell all my little champs that do the job so well that even your toughest critic -'you'-can take pride in the results. Whatever you dream you have to begin it now because boldness has genius, power and magic in it.

Our nation is already making a mark in the world in various fields and its only 'you' my dear students who can help the country grow by demonstrating your strength, will power and hard work by conquering your weakness, dishonesty and selfish interest. Teachers can only give good advice and put you on the right path but the final forming of a person's character lies in his own hand.

We at MET family would mould you and shape your future but you have to learn, learn and continuously learn for learning will only fetch you all what is desired in life.

Our Brihaspatis

1st row (L to R) – Mrs. Sheeja Koliyote, Mrs. Nikita Sanghavi, Mrs. Aushima Dasari, Dr. (Mrs.) Madhura Vaidya, Ms. Sindhu Nair, Mrs. Poonam Advani, Mrs. Bhagyashree Joshi, Ms. Vrushali Keer
2nd row (L to R) – Ms. Priyanka Joshi, Ms. Mallika Jolly, Dr. (Mrs.) Vaishali Dixit, Dr.(Mrs.) Abha Doshi, Dr. U. B. Hadkar, Dr.(Mrs.) Radhika Raheja, Dr.(Mrs.) Sonali Naik, Dr.(Mrs.) Rashmi Srivastava, Dr.(Mrs.) Vijaya Patil.

The Student Council

From the Cultural In-Charge

The academic year 2012-13 began on a high note with our final year student, Ms. Saniya Malim topping the Mumbai University B. Pharmacy course. Students also won in the sports events organized by the University of Mumbai during September 2012.

This year saw a good blend of the cultural and academic activities. Various festivals like Ashadi Ekadashi, Nagpanchami and Mangalagauri were celebrated with zeal.

Our students' council first cultural event, the Fresher's party was a smashing success. The students' turnout far exceeded the numbers we have seen in the recent past. The energy levels and participation in the Fresher's party was exceptional. Indeed seeing the enthusiasm of our freshers made us feel that they were already a part of the MET family.

Our B. Pharm and M. Pharm students participated as well as won laurels in a number of intercollegiate tech-fests: Exergy, YICC (ICT, Matunga), Insight 2012-13 (IES, Bandra), Zonal level Young Pharmacist Innovative Project Award-2013 (SVBCP, Dombivli) and at the Rx festival.

January 2013 dawned with good tidings. It was time for nostalgia at the Alumni meet. About 126 alumni students registered for the event. Our alumni students counseled the current students about the various career options.

Our in-house much awaited festival MET-UTSAV is again seeing enthusiastic participation from Institute of Pharmacy in both sports and cultural events. There is more to come: the farewell and Lumiere. This year, we will be biding adieu to our final year B. Pharm and our first batch of M. Pharm students. But for every ending, there is a new beginning.

So long for the cultural year 2012-13. Signing off.....

The Cultural In-Charges
Dr. (Mrs.) Vaishali Dixit
Dr. (Mrs.) R. K. Raheja

Editorial

As Winston Churchill rightly said, "Responsibility is the price of greatness " ,job of an editor is not easy and comes with a package of responsibility and hard work.

The editorial board drives you through the yearly happenings, the cherishable moments at MET in a yearly compilation called 'The Nest'.

The two most engaging powers of an editor are to make new things familiar and the familiar things new.'The Nest' 2013 will bring to your notice way towards a healthy, ecstatic living. For the first time 'The Nest' showcases the talent of M Pharm students. The artworks, poems, photography proves the metal of METians in every field.

They say that an Editor is someone who rides in a whirlwind and directs the storm. The journey as an editor has been enjoyable and has always been a learning process.

We would like to thank Dr. (Mrs.) Radhika Raheja and Dr (Mrs.) Vaishali dixit who have always buoyed up our confidence and guided us throughout. We are also thankful to Mr. J.G.Irani, Mr. Ashish Srivastava, Mr. Pravin Gangan and the entire Marcom team without whom 'The Nest' would not have been what it is.

The Editorial board
Arjav Modi (T Y B Pharm)
Bijal Dalal (T Y B Pharm)
Chinmayi Naik (S Y B Pharm)

The Council Talks

Academic year 2012-2013 brought together students from all the years of MET Institute of Pharmacy to form the students' council. And then began a journey, an experience and a curve, a learning curve.

Beginning with small events and work, the council worked together step by step to achieve all its goals and with every passing event, we got strengthened as a team, as one unit. The incentive of always doing something diverse and innovative always kept us thinking for 'something new and something contrary to the regular.'

As we moved into the year, the council work journey has been a short of a roller coaster ride. Just like pressure converts black coal into a shimmering diamond, having faced a variety circumstances, it has only helped each one of us grow as individuals.

Strict when needed but almost like one of us students otherwise, their constant support has helped us no end to accomplish what we began to as a team. Their inputs and ideas have made us reach where we are today, we would like to thank Dr. (Mrs.) Radhika Raheja and Dr (Mrs). Vaishali Dixit for their constant support. We are also grateful to Dr. Hadkar, Dr. Abha Doshi, Mr. Bhosale and all the other teachers and the non-teaching staff for the constant support and never ending help.

Working together and having our set of experiences we realized that whatever happens, happens for a reason and even the smallest experiences in life sometimes teach you the biggest and the most important lessons. Moving into the latter half of this academic year, we are proud to have formed this year's council and have had some of our best memories which we will always cherish.

A famous phrase says, "Optimism is the foundation of courage." By the end of it we are ready for consequential and tougher circumstances that we may face in the future and would always look forward to learning, adapting and growing.

Thank You,
The Student Council.

The Student Council

General Secretaries
Mr. Hetuk Shah (T Y B Pharm)
Ms. Anagha Sonawane (T Y B Pharm)

Cultural Secretaries
Mr. Pathik Desai (S Y B Pharm)
Ms. Mamta Parekh (S Y B Pharm)

Sports Secretaries
Mr. Mihir Patwardhan (T Y B Pharm)
Mr. Deep Majithia (S Y B Pharm)

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Ms. Mrinmayee Bhandari (S Y B Pharm)

Editors
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Ms. Bijal Dalal (T Y B Pharm)
Ms. Chinmayi Naik (S Y B Pharm)

Class Representatives
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Mr. Akash Sahu (F Y M Pharm)

Ms. Avani Gosalia (Final Y B Pharm)
Ms. Sneha Miyani (Final Y B Pharm)
Ms. Brinda Shah (Final Y B Pharm)

Mr. Praveen Bijja (T Y B Pharm)
Ms. Priyanka Kadvekar (T Y B Pharm)
Ms. Pooja Dubey (T Y B Pharm)

Mr. Vivek Bandagale (S Y B Pharm)
Ms. Preet Joshi (S Y B Pharm)
Ms. Shreya Mhatre (S Y B Pharm)

Ms. Munira Loliwala (F Y B Pharm)
Ms. Trupti Zingade (F Y B Pharm)
Mr. Moinuddin Amrelia (F Y B Pharm)

MET Tales

Recapitulated…

MET IOP has already established itself as one of the best pharmacy college in India as well abroad. MET has been and always aimed at overall development of its student. So here we have festive, seminars, picnics as well as rallies for social development being conducted by students and teachers. So here we have MET Tales….Recapitulated…in a nutshell.

Nag Panchami

This year, the festival was celebrated on 23rd July, Tuesday in Hast nakshatra. This festival was celebrated with faith and fervor. On this day, worshiping Lord Shiva, the holder of serpent, is considered auspicious. MET IOP celebrated Nag Panchmi as enthusiastically as ever. A beautiful rangoli drawn by the students of MET made the occasion all the very blissful. The occasion was assisted by Aarti and distribution of Prasad to all.

Satyanarayan Pooja

Towards the end of shravan masa, a satyanarayan puja was held in the college on 14 th August 2012. The puja was held with all the serenity. Students and staff were in traditional wear as per the occasion. Aarti of lord satyanarayan brought peace to everyone s mind and soul. Everyone enjoyed the delicious meal and Prasad on the day.

Independence Day

India celebrated 66 th year of independence on 15 th august 2012.However the occasion's enthusiasm had faded due to the heavenly departure of Maharashtra s ex-CM Mr. Vilasrao Deshmukh.However, in midst of this political mourning, MET celebrated Independence day in presence of our guest of honours Mr. and Mrs. Pankaj Bhujbal.There was half mast hoisting of the flag in honour and loving memory of Mr.Vilasrao Deshmukh.This was followed by a performance by students of MET RISHIKUL.

Blood Donation Camp

MET Institute of Pharmacy organized a Blood Donation Campaign on September 4th, 2012. It was arranged with the cooperation of Sarvodaya Hospital Samarpan Blood Bank, the camp was a great success and over 60 units of blood was collected. MET's trustees, students, staff and faculty members actively participated in this life saving cause.

MET Tales

Recapitulated...

Mangala Gauri

Mangala Gauri fast is observed on every Tuesday of Shravan month, by married women and newly married ladies. The motive behind this vrat (fast) is to wish for long and happy life of their husband and children. All the teachers and girls were invited for the occasion in the recreational area. All the teachers wore navari sarees for the occasion. MET had invited a mangala gauri performers-a group of married ladies that narrated the story and significance of mangala gauri to the girls and teachers. They also enlightened the spectators with various games that are played during the vrat. Teachers and students thoroughly enjoyed playing games. This festival made all the young girls aware of this wonderful festival celebrated in India since ages.

Fresher's Party

On 28th September Fresher's party was held to welcome the new entrants, F Y B Pharm,F Y M Pharm and our two new staff members Ms.Mallika Jolly and Ms.Priyanka Joshi. The theme of the party was` Masquerade' and everybody participated whole heartedly. The evening commenced with speeches by the authorities. The new attraction this year was Flash Mob by the fresher's. Performance was also given by M.Pharm. Question and answer round for Mr. and Ms. Fresher Event was interactive and gave a chance to know newbies better. Abhi Munani and Dipali Nagila won Mr. and Ms. Fresher title respectively. Snacks were served and event ended with a jam session.

Teacher's Day

Teachers are those people in our life who inspire us and bring out the best in their students. Which other day can be the best other than Teachers day to express our reverence and gratitude towards them. This year on 5th September, 2012, Teachers day was celebrated with great enthusiasm. A cake was cut to celebrate this day and Student Council presented greeting cards as token of love and appreciation. Every year this day binds the cord between every student and teacher to remind us that we are special because of our teachers.

Republic Day

As India celebrates its 63rd republic day, MET celebrated this democratic day with great enthusiasm. Mr. Pankaj Bhujbal hoisted the Tricolor. Patriotic songs sung by MET tansens revived everyone's patriotism.

Campus Interview

interviews were conducted by Tata Consultancy Services. In all, 8 students were selected from Final Year B Pharm.

MET Tales

Recapitulated…

Seminars

Schott Tubing: SCHOTT Glass India Pvt. Ltd. has been present in India since 1998 when SCHOTT took over a company producing pharmaceutical tubing in Jambusar district in the State of Gujarat. MET was proud to have a seminar by SCHOTT werein the students received knowledge about various types of glass containers used in pharma industry, each with a different properties.SCHOTT tubing is one of the major suppliers of glassware be it for vials, liquid dosage form containers, kitchen appliances or optics. The seminar was held on 24 th July 2012.

Women's Wellbeing initiative: a seminar was organized by YC Wyeth at MET in order to address health issues.

Pharmacognosy field trip: On 7th July, a trail was organized in Maharashtra nature park at Mahim. An expert Botanist briefed the students about the various identifying characteristics of 75 medicinal herbs. This gave the students more practical approach to pharmacognosy.

ALUMNI MEET

Interactive Session

A seminar was conducted in MET IOP on 12th January 2013 and we were proud to have 5 of our Alumni as our eminent speakers.

The 1st speaker was Dr. Jay Shinde, pursued MS and PhD in US in the field of Pharmacognosy from University of Maryland, Baltimore. He briefed the METians about the identification and characteristics of herbs. His presentation acquainted us with the process of research involved; starting from isolation of molecule, its identification and characterization by its organoleptic properties and chemical tests, extraction, separation and analysis.

2nd speaker was Dr. Girish Kulkarni who has done his MS and PhD in Toxicology from University of Maryland, Baltimore. His subject of discussion was about a drug called Galantamine which prevents degeneration of neurons in brain & PNS induced by soman. Soman is an organophosphorus compound commonly used in insecticides and pesticides and hence is consumed by every individual by default. Soman is capable of inducing apoptotic cell death in guinea pig brain and is also responsible for causing Alzheimer's disease in humans. Galantamine is an antidote for humans which by acting on ANS counteract ill effects of soman.

3rd speaker was Mr. Rushil Bhatt who successfully conveyed to the students to make right choice of career post B.Pharm. He is involved in research about snake venom.

Mr. Ganesh Saive, a clinical research executive in GSK, and Mr. Vivek Jaria, a sales representative in Pfizer, were successful in solving the most common query in Third year and Final year students which is," B Pharm almost done! What next? ". Their presentation unveiled information about core pharma jobs and the functioning of Pharmaceutical Firms.

MET Tales

Recapitulated…

The Event

MET IOP was proud and happy to arrange a get-together for the Alumni of MET IOP. The ceremony was held in the evening and presence of respected trustees Mr. Pankaj Bhujbal merried all. The events including performances and games. For the 1st time in MET, Alumni of MET also witnessed this event through Skype video calling. The alumni were happy and touched to meet their dear teachers and colleagues and they thoroughly enjoyed the evening.

Alumni-Through the Lens

MET Tales

Recapitulated…

Mumbai Police Awareness Campaign

The Mumbai Police has initiated a student awareness movement known as the "JAGRUT MUMBAIKAR ADHYAAN". The motive of this adhyaan is to create awareness regarding the evil practices that we witness in our society. Over 400 awareness programs have been conducted all over Mumbai. One such lecture was arranged at MET with an intention of creating awareness among the students of MET.
In the lecture it was emphasized that there is a lack of awareness in the citizens of our country. According to the survey, 87% people could not relate themselves as victims of any act of terror. This adhyaan has laid down some rules which are to be followed by the people if they come across an unclaimed article.
The following were some of their recommendations:

- Never touch or remove a packet unless duty bound.
- Never open the package.
- Never submerge the package in water.
- Never pull out the strings or wires.
- Never pass any metallic object over the package.
- Never use radio in the vicinity of the object.
- To evacuate people to a safe distance. Always evacuate the people and not the bomb.
- Never direct a flashlight on the bomb.
- To Place sandbags around the object.
- Never cover the object because harmful or sharp particles used in the manufacture of a bomb travel with a velocity of 8000 m/s.
- Never accept the identification marks on the package on their face value.
- Inform the police or any bomb detection and disposal units.
- Inform senior officers, Fire station and neighboring premises.
- Evacuate the area of suspected article if needed
- Assist police and bomb squad.
- Keep telephone free for incoming calls.

The students were made aware of the various street and cyber crimes. The team concluded the lecture by advising the students to remain vigilant at all times and stressed on the importance of not giving in to temptations.

Phytopharmaceuticals – An overview

A one day seminar on 'Phytopharmaceuticals – An overview' was organized on 15 February 2013 by Dr. (Mrs.) Rashmi Srivastava and Ms. Vrushali Keer. The seminar was attended by academicians and students of other colleges as well. The guest speakers included Dr. Narendra Bhatt, Dr. (Mrs.) Pratima Tatke, Dr. (Mrs.) Renuka Kulkarni Munshi and Dr.K. S. Laddha.

MET Tales

Recapitulated…

The first speaker was Dr. Narendra Bhatt (Head and Ayurvedic consultant, CRIA Care Pvt. Ltd.) who discussed Ayurvedic dosage forms and its pharmaceutical challenges. His lecture was aimed at eliminating the myths surrounding Ayurveda and brought out the scientific aspects of Ayurveda.

Dr.(Mrs.) Pratima Tatke (Associate Professor, Pharmaceutical Chemistry, C. U. Shah College of Pharmacy, SNDT University) was the second speaker. She spoke on standardization of herbal products using phytomarkers like Scopoletin, Catechin, Aloin, Bacoside A by HPLC/HPTLC.

Dr. (Mrs.) Renuka Kulkarni Munshi (Dept. of Clinical Pharmacology, TN Medical College and Nair Hospital, Mumbai) gave a brief review on extraction, isolation and clinical examinations carried out for various phytoconstituents. Her research comprises of optimising the isolation and pharmacological activity of the active constituent from *Tinosporia cordifolia*. The active constituent has shown proven and reproducible anti-cancer activity.

The seminar concluded with a lecture from Dr. K. S. Laddha (Dept. of Pharmaceutical Technology, ICT, Matunga). He introduced the audience to the current scenario in the herbal market. His primary topic of discussion was on Phytochemical Reference Substance (PRS). He defined PRS as a compound reported to be present in the plant material, whose identity and purity has been confirmed. PRS is used for identification test and assay of raw materials of botanical origin. He also discussed extraction, isolation of drugs like marmelosin, ellagic acid, vasicine, embellin and many more.

Industrial Visit

SITE : Gel Nova Laboratories, Mahape, Navi Mumbai

DATE OF VISIT : 5th January 2013

CLASS : F Y B Pharm

PURPOSE OF VISIT : To know about the basic processes involved in manufacturing in pharmaceutical industry.

PLANTS VISITED : Capsule manufacturing, packaging, quality control department.

SAILENT FEATURES : An industrial visit for the F Y B Pharm was organized at the Gel Nova Laboratories by the IPA team members on 5th January 2013.

In this visit, the students visited air capsule filling area, air handling and utility area, capsule manufacturing, packaging department, quality control department. Students were provided with lab coat, head cap and shoe covers in order to maintain the sterility conditions.

Students were given details about GMP practiced in an industry. During the visit to different departments. All the processes which were carried out in the various departments like instruments cleaning and material flow etc were explained.

Gel Nova industry manufactures soft gelatin capsules. It manufactures Tretinoin capsules, fish oil formulation, Calcitriol formulations, evening primrose oil formulations etc.

Hiral Patolia
Mamta Jain
Jyoti Singh
Avani Parikh
(F Y B Pharm)

Teacher's Achievements

- Dr. (Mrs.) Radhika Raheja completed her PhD in screening and anticancer activity of some plant extracts against colorectal adenocarcinoma this year.
- Dr. (Mrs.) Rashmi Srivastava completed her course in Music Therapy.
- Ms. Vrushali Keer secured first rank in MMM at MET IOM.
- Mr. Sunil Mohite acquired B.Com degree last year.

ACADEMIC TOPPERS

F Y B PHARM	S Y B PHARM	T Y B PHARM	FINAL Y B PHARM
Ms. Shreya Mhatre	Ms. Bijal Dalal	Ms. Sunaina Bhaskar	Ms. Saniya Malim
Ms. Chinmayi Naik	Mr. Dinesh Choudhary	Ms. Nikita Shah	Ms. Manasi Chawathe
Ms. Lazari Kambli	Ms. Soumya Chikermane	Mr. Rhythm Mitra	Ms.Yuga Maru

F Y M PHARM
Ms. Suruchi Sharma
Ms. Iswarya Sridhar
Mr. Sachin Verma

Ms. Saniya Malim, our student of Final Year B Pharm has secured 1st rank at Mumbai University in the academic year 2011-12.

Saniya speaks: A Real Fairytale...Simply Incredible!!

Yes I am talking about the fairytale at the Mumbai University Annual Convocation. I was felicitated with a gold medal for being the Mumbai University B.Pharm. topper in the presence of Shri Pranab Mukherjee-President of India, Shri K.Sankaranarayanan-Governor of Maharashtra and Shri Prithviraj Chavan-Chief Minister of Maharashtra.....a reality which still feels like a dream.

In the 1st week of December I got a call from the Mumbai University office asking me to collect the letter for the Annual Convocation scheduled on 30th December. When I went to the University office, I was informed that I would be receiving the Dr. D.M.Rangnekar Memorial Medal for being the Mumbai University B.Pharm topper. I was exulted. On 26th December 2012 I got a call again from the University office to collect the invitation pass for the programme.

27th December 2012-a day that started with a huge surprise and suspense. At the University there was a totally unexpected revelation that the dignitaries for the convocation would be Chief Guest-Shri Pranab Mukherjee-President of India, Presided By Shri K.Sankaranarayanan-Governorof Maharashtra, Guest of Honour-Shri Prithviraj Chavan-Chief Minister Of Maharashtra. I was just not ready to believe it. There were total 51 gold medalists. We all filled the forms issued by the Central Bureau of Investigation(CBI) for a VVIP pass. On 29th December 2012 the medalist were called to the University Fort campus for a rehearsal. The campus was buzzing with police preparing for the big day. We had a meeting with the Vice Chancellor of the Mumbai University, Dr. Rajan Welukar in his office at the Fort campus-a beautiful heritage structure with intrinsic architecture. We all were actually treated like VIPs.I got a beautifully designed convocation invitation card in the shape of Mumbai University. I was so overwhelmed. Finally the day arrived. All roads around the Mumbai University Fort campus were cordoned off, traffic was diverted. I reached there at 8.00 AM full of excitement and happiness. The University Campus was buzzing with Army, Police, Black cat commandos, Bomb squad and Sniffer I had never thought in my wildest dreams that I would be treated as a VVIP person. After going through the rigorous security checks at various points I finally entered the Sir Cowasjee Jehangir Hall (Convocation Hall).It felt like

Luminaries

Celebrating Brilliance...



just walking into a palace. I had a seat reserved for me in the front row with my name on it, a truly royal treatment. For parents the seating arrangement was made in the balcony on the first floor of the hall. There were huge 8-10 LCD TV's in the hall for everyone to get a glimpse of the stage clearly. Separate stage had been created for the media on all sides. The convocation ceremony began with a procession from the University library building. The procession had Heads of Department and students of various faculties, the Guest of Honour, the Indian Army band with the soldiers playing extra-ordinarily. The procession was lead by the Controller of Examinations Shri Deepak Wasave holding the Mumbai University Septa. The procession finally entered the Convocation hall. Was this a reality? I could not believe myself. Other prominent people like the Chief of the Army, Navy, Air Force as well as the Police Commissioner were also present. CID officials in plain clothes were keeping a close watch on every one and looking for anything suspicious. After the introductions and speeches it was time to felicitate the gold medalists. The cameras of the media flashed continuously all together at once clicking a myriad of photos. I was actually getting nervous. The first few medals were awarded by the Chief Minister. The first boy who went up greeted the president with a handshake. Immediately the Presidents Security Personnels came forward and instructed all of us that no touching the President. They said you can greet him by a namaste but no handshakes please. Finally it was my turn to go on the stage, I could feel butterflies in my stomach. I received my medal from the Governor but was mesmerized to receive it in the presence of the First Citizen of India-The President. I still remember the moment when Shri Pranab Mukherjee greeted me with a namaste and said congratulations my heart almost skipped a beat...and I lived the best moment of my life till date. A memory I shall cherish all through my life....

Metamorphosis

Ms.Swapnaja Shinde of Final Y B Pharm won 3 rd prize in Rangoli competition.

IES Insight

1. Ms. Jesal Doshi and Ms Vandana Wankhede of S Y M Pharm were awarded 1st prize for their research paper on "Review on self emulsifying drug delivery system: A novel approach for hydrophobic drugs".
2. Ms. Bhagyashri Chavan and Mr. Yashwant Malode of S Y M Pharm were awarded 3rd prize for their research paper on "Formulation and evaluation of floating tablets-Losartan potassium" and were guided by Dr. (Mrs.) Abha Doshi.
3. Mr. Monil Karia and Mr.Kiran Ghanekar of S Y M Pharm received 2nd prize in poster presentation on "hERG suppression –an expedite approach in development of safer cardiovascular drugs", guided by Dr. (Mrs.) Vaishali Dixit and Ms. Vrushali Keer.
4. Ms. Bhagyashri Chavan and Mr. Yashwant Malode of S Y M Pharm won 2nd prize in pharma quiz.

Rx Tech Fest

Mr. Abhishek Nair, Mr. Dinesh Choudhary, Ms. Soumya Chikermane of T Y B Pharm won 3rd prize for their paper presentation on Oncolytic Virotherapy: A solution to metastatic cancer.

Luminaries

Celebrating Brilliance...

MET Utsav

MET Gaurav - Ms. Saniya Malim for being awarded the best student of the year in RX techfest by IPA.
MET Ratna (student) - Ms. Saniya Malim for being the university topper in the year 2011-2012.
MET Ratna - Ms. Vrushali Keer for securing 1st rank in MMM at MET
MET Pragnyavant - Mrs. Vijaya Patil for her research paper was published in Int J Cosmet Sci. 2012 on Inhibition of Propionibacterium acnes lipase by extracts of Indian medicinal plants.
Students: Mr. Mustafa Mithaiwala, Ms. Rakhi Modak, Mr. Hetuk Shah, Ms. Pranita Dharmadhikari
Ms. Mayuri Avhad, Ms. Madhura Chaudhari
MET Bhusan- Dr. Ulhas Hadkar
Mrs. Manasi Vaidya

Exergy 2013

1. Ms. Somali Dey, Ms. Pragatee Gawande, Ms. Vrunda Mehta of Final year B.Pharm won 1st prize in Business plan.
2. Ms. Sujatha Iyer, Ms. Prachi Patil of Final year B.Pharm won 3rd prize in Business plan.

Sports

Mr. Rohan Awate of T Y B Pharm secured 5th rank in Table Tennis at Zonal and Interzonal matches from Maharashtra arranged by University of Mumbai.

MET table tennis team comprising of Mr. Rohan Awate (T Y B Pharm), Mr. Anish Gomatam (Final Y B Pharm), Mr. Soham Sawant (S Y B Pharm), Mr. Tejas Phatak (T Y B Pharm) and Mr. Chirag Thakkar (Final Y B Pharm).

MET Utsav Sports Winners

1. Kho-kho

Boys -1st prize
Team comprising of Anmol Unhawane (T Y B Pharm), Sachin V (S Y M Pharm), Amol Rakamutha (F Y M Pharm), Pranav Shirkar (Final Y B Pharm), Sunil Katare (Final Y B Pharm), Hanmant Karande (Final Y B Pharm), Ajinath Virkar (S Y B Pharm), Mandar Valavalkar (Final Y B Pharm), Pramey Patil (Final Y B Pharm), Niranjan Aldar (S Y B Pharm), Pintoo Gupta (S Y B Pharm), Yogesh Bergel (S Y B Pharm).

Girls-2nd prize
Team comprising of Pooja Goradia (Final Y B Pharm),Teena Oswal (S Y M Pharm), Bhavana Chauhan (S Y M Pharm), Shambhavi Bachhav (S Y M Pharm), Samidha Kamtekar (S Y M Pharm), Rutu Desai (T Y B Pharm), Rakhee Modak (Final Y B Pharm), Snehal More (T Y B Pharm), Vishakha Salvi (T Y B Pharm), Dipali Nagila (F Y B Pharm), Sahana Ray (S Y B Pharm), Anuradha Pol (Final Y B Pharm), Ishwarya Sridhar (S Y M Pharm)

Staff – 2nd prize
Team comprising of Mrs. Vaishali Malvankar, Mrs. Priya Sawant, Mrs. Asavari Hadkar, Mrs. Kasturi Shedge, Mrs. Kiran Dubey, Mrs. Vaishali Dixit, Mrs. Aushima Dasari, Mrs. Madhura Vaidya, Mrs. Abha Doshi, Ms. Mallika Jolly.

2. 50 meter Relay

Boys-1st prize
Team comprising of Sham Patil (T Y B Pharm), Yashwant.M (S Y M Pharm), Ujjwal.Y (S Y B Pharm), Jeetendra.D (F Y B Pharm).

Girls – 1st prize
Team comprising of Munira Loliwala (F Y B Pharm), Trupti Zingade (F Y B Pharm), Shrijal Mehta (F Y B Pharm).
Staff – 1st prize
Team comprising of Mrs. Asavari Hadkar, Ms. Mallika Jolly, Mrs. Deepali Khabale, Mrs. Priya Sawant.

3. 50 meter running
Boys-Sham Patil (T Y B Pharm) won 2nd prize.
Girls-Trupti Zingade (F Y B Pharm) won 3rd prize.

Staff - Ms. Mallika Jolly won 1st prize.
Mrs. Asavari Hadkar won 2nd prize.

4. Sack Race
Boys-Pravin Bijja (T Y B Pharm) won 2nd prize
Aditya Kamat (S Y B Pharm) won 3rd prize

Girls-Rupali Ganame (T Y B Pharm) won 1st prize
Hely Desai (S Y B Pharm) won 2nd prize

Staff – Mr. Sunil Mohite won 2nd prize.

5. Slow cycling
Boys-Rohan S (F Y M Pharm) won 3rd prize
Girls-Manali Kadam won 2nd prize

6. Long Jump
Boys-Niranjan Aldar (F Y B Pharm) won 2nd prize.
Girls-Munira Loliwala (F Y B Pharm) won 2nd prize

7. Box cricket
Girls-1st prize
Team comprising of Avani Gosalia(Final Y B Pharm),Akansha Dhuri(S Y B Pharm),Ankita.J (S Y B Pharm),Priya,Preet Joshi(S Y B Pharm),Mubina Shaikh(T Y B Pharm),Shraddha R(T Y B Pharm),Urmi.M (T Y B Pharm), Shreya Mhatre(S Y B Pharm), Mrs.Sheeja Koliyote.

Staff-1st prize
Team comprising of Mrs. Sushma Gokhale, Mrs. Abhilasha Sharma, Mrs. Deepali Khabale, Mrs. Vaishali Malvankar, Mrs. Neha Burfiwala, Ms. Vrushali Keer, Ms. Sindhu Nair, Mrs. Sheeja Koliyote, Mrs. Abha Doshi, Mrs. Vaishali Dixit, Mrs. Madhura Vaidya.

8. Langadi
Girls-1st prize
Team comprising of Hely Desai (S Y B Pharm),Vishakha Salvi (T Y B Pharm), Meshva Patel (F Y B Pharm), Vrushali Bhamere (F Y B Pharm), Sneha Shivalkar (F Y M Pharm) ,Somya Pandey (S Y B Pharm), Kiran Choudhary (T Y B Pharm),Hiral Patolia (F Y B Pharm), Rupali Ganame (T Y B Pharm), Kusum Choudhary (S Y B Pharm), Megha Devare (S Y B Pharm) ,Kanchan Sangale (S Y B Pharm).

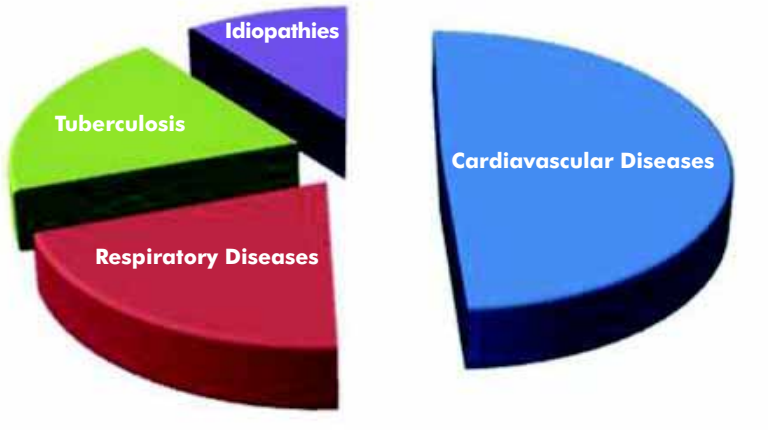
Staff-2nd prize
Team comprising of Mrs. Vaishali Malvankar, Mrs. Priya Sawant, Mrs. Asavari Hadkar, Mrs. Kasturi Shedge, Mrs. Kiran Dubey, Mrs. Vaishali Dixit, Mrs. Aushima Dasari, Mrs. Rashmi Srivastava, Mrs. Bhagyashree Joshi, Mrs. Madhura Vaidya.

9. Shot Put
Girls-Archita Menon (Final Y B Pharm) won 3rd prize
Staff – Mrs. Asavari Hadkar won 3rd prize.
Mr. Pradeep Jadhav won 1st prize.

MET IOP does it again !!! We were awarded The MET VIKRAM trophy.

Cardiovascular Disease (CVD)

The 5 most prevalent diseases in India Contributing to highest mortality rate are-



CVD would be the largest cause of death & disability in India as per WHO report 2012.
Since the last decade it has been of great concern that people are suffering from disease caused due to changing and hectic lifestyle. In olden days people used to die of communicable diseases. However, the trend has changed. CVD kill an estimate of 17 million people worldwide each year 25% of deaths in age group of 25-69 years occurs because of CVD. About 32.8% of populace in urban areas and 22.9% populas in rural areas in India die because of CVD.A trend has emerged particularly since 2000 in which it was found that fast food has increased incidence of CVD.

Types of CVD

The top five CVD having the highest mortality rate are-

1) Coronary artery disease-It is the blockage of coronary artery, [i.e. the artery suppling blood to heart] due to deposition of an atheriosclerotic plaque. Thus, the heart starves for blood and oxygen, causing death of myocytes in heart.

2) Hypertension (HT)-HT is a medical term for high B.P. When the systolic B.P is higher than 140mm/Hg and the diastolic B.P above 90mm/Hg HT results. HT increases an individual's risk of heart attack and stroke

3) Arrhythmias- Arrhythmias means abnormal heart beat. Heart rate may become too fast or too slow or may even skip beats. Arrhythmias can lead to heart attack / stroke.

4) Myocardial infarction (MI) - MI occurs if the blood flow to a part which is blocked long enough so that myocytecs die. Atherosclerotic plaque may be responsible for MI. Chest pain is the most common symptom of HI.

5) Stroke- A Stroke occurs when there is blockage of artery suppling blood to the brain. Thus, the brain is deprived of blood and oxygen and it begins to die.

Causes of CVD:

1) Unhealthy diet
2) Physical inactivity
3) Tobacco use
4) Alcoholism
5) Diabetes
6) Stress
7) Some OTC medications, dietary supplements etc.

Behavioral/lifestyle risk factors are responsible for about 80%of CVD.

Cerebrating METizans

Eureka!

Probability of occurrence of CVD in Men vs. Women:

WOMEN

1) Blood lipids-Before menopause estrogen maintains low level LDL and high level of HDL in women. After menopause women have high concentration of cholesterol than do men. Therefore, there is increased risk of CVD in women after menopause.

2) DIABETES-It also has added risk factors of obesity, hypertension, high cholesterol. Therefore, Although women usually develop heart disease about 10 years later than men, diabetes erases that advantage. In women who've already had a heart attack, diabetes doubles the risk for a second heart attack and increases the risk for heart failure.

3) SMOKING-Women who smoke are twice as likely to have a heart attack as male smokers. Women are also less likely to succeed in quitting. Moreover, women may not find nicotine replacement as effective, because the menstrual cycle affects tobacco withdrawal symptoms and they may get inconsistent results with antismoking medications.

MEN

Men suffer from the disease at a younger age because they tend to have higher blood pressure, higher cholesterol, and they are more likely to be smokers than women.

CVD in Youth

Junk food causes one third of heart attacks. Junk food is No.1 cause of CVD in youth between 20-35.

Junk food #1: Pizza

Cheese on pizza is No.1 source of saturated fat. An extra slice of cheese may contain as much as 2/3rd of one's daily saturated fat limit.

Tips to lighten up your pizza:

1)Top it with veggies instead of pepperoni & sausage.

2) Say no to bread sticks & yes to salad.

And here you are on way to preventing heart disease.

Junk food # 2: Fast food

Saturated food and Na load, Trans fat, in fast food, raise CDC & lowers HDL cholesterol. However manufacturers incorporate such ingredients because they have long shelf life. The FDA recommends not more than 1.11gm of transfat/day.

Junk food # 3: Soda

Soft drinks are the biggest source of sugar in our diet.

Guzzling large quantity of soda can lead to increase in blood sugar, increase insulin resistance and lost of elasticity of arteries.

A better beverage when you want caffeine is unsweetened iced tea or coffee.

If its carbonation you crave for, try Seltzer with fruit juice and a twist of time.

5 medications free strategies to prevent CVD

You can avoid heart problems in future by adopting healthy lifestyle today.

1) Quit smoking and tobacco. Nicotine in cigarette causes narrowing of blood vessels and thus increases HR & B.P carbon monoxide (CO) in cigarette displaces some oxygen in Hemoglobin.This increases B.P by forcing heart to pump more blood to meet Oxygen needs of body.

2) Exercise for 30 mins on most days of week.Physical activity reduces weight, stress. Activities such as gardening, housekeeping, using stairs instead of an elevator, taking your pet for a walk benefits your CVS. Exercise may not be strenuous to achieve benefits. Instead increase the duration and frequency of your work out.

3) Eat heart healthy diet.

Eating a special diet called a Dietary Approaches to Stop Hypertension (DASH) can protect your heart.DASH includes low fat, low cholesterol and low salt food, diet rich in fruits , veggies , beans food containing omega-3 fatty acids like fishes – Salmon and Mackerel , flax seed oil , walnut – soyabean –canola oil benefits your heart.

4) Body weight
Calculate your BMI which considers your weight and determines the % of body fat
BMI=Weight in Kilograms / (Height in Meters)2BMI of more than 25 is associated with CVD.
5) Get regular health screenings.B.P optimal B.P 120/80 mm of Hg.
SO ALWAYS REMEMBER,"AN OUNCE OF PREVENTION IS WORTH A POUND OF CURE"

Bijal Dalal (T Y B Pharm)
Shreya Mhatre (S Y B Pharm)
Preet Joshi (S Y B Pharm)

Tuberculosis

LET US ALL TAKE A STEP FORWARD TO CREATE A TUBERCULOSIS FREE INDIA.

According to the National TB control programme annual status report 2011- 2,200,000 new cases of TB were reported in India, out of 8.7 million cases all over the globe. India is a country with highest number of multidrug resistant TB in South East Asia.

WHAT IS TUBERCULOSIS (TB)?

TB is caused by a bacterium *M. Tuberculosis*. TB infection may be latent or active. In the latent infection, the person is infected by the bacteria but the body's immune system is active against it, so the person does not show the symptoms of TB. In most of the people latent infection does not become active. Only 5-10% of people with latent TB who do not receive any treatment may develop active disease sometime in their life. However people suffering from HIV, diabetes, renal failure may develop active TB. Types of TB re pulmonary, skeletal, lymph nodes or it can infect abdominal organs.

HOW DOES TB SPREAD?

TB is an airborne disease; when a person suffering from TB sneezes, cough or spits, the droplets contain TB bacilli. One cough or sneeze of such a person can expel about 40,000 TB bacilli in air. However, contrary to the myths, TB does not spread by water, food, by contact by that is shaking hands or by sharing same toothbrush etc…

SYMPTOMS OF TB

Symptoms of pulmonary TB are chills, fever, persistent cough, coughing of blood, loss of appetite, weight loss. Symptoms of are abdominal TB diarrhoea, stomach ache and bleeding from anus.
If above symptoms appear, the person should immediately see a doctor and get all the tests done.

TB TESTS

Sputum smear microscopy: The primary test for TB is the sputum (cough) test. A sputum sample is collected from the patient, microscopy of the sample tells us for the presence or absence of mycobacterium.
Tuberculin Test: Tuberculin is a protein derived from the bacilli. It is injected in small quantity in lower part of the arm. If there is inflammation at the injection site the patient suffers from TB. However false positive results may appear in

following cases:

1. Patient is infected with other bacteria
2. BCG vaccine being antiTB vaccine, if the patient has been vaccinated gives false positive test.
3. Person suffers from HIV.

Although new TB screening tests are becoming available, they are generally too expensive for developing countries with respect to its production cost and the availability of highly trained staff. This results in delays in providing patients with the appropriate drug treatment.

BCG VACCINE

ALL THE NEWBORN CHILDREN SHOULD BE VACCINATED WITH BCG VACCINE IN INDIA. It is given anytime from birth to first 15 days of life as a part of EPI schedule recommended by the government of India. (Expanded programme on immunization aims at reducing illness ,disability and mortality from childhood diseases, preventable by immunization.

An organization AERAS (It is a nonprofit organization that develops new TB vaccine and distributes it throughout the world) is conducting a clinical trial on vaccine that can replace BCG, since it will be capable of protecting against multi drug resistant (MDR) bacteria. In October 2012 it was announced that in collaboration with GlaxoSmithKline, AERAS will in 2013 begin a phase IIB study in India. It is planned that this vaccine if successful would add to the armamentum of antitubercular treatment.

MDR TB

People suffer from MDR TB due to lack of proper knowledge regarding the disease and this leads to discontinued treatment due to side effects of antitubercular drugs. Hence, it is important that TB patients should be counseled by their doctors regarding the effects of drug. For instance, person receiving rifampicin may have orange tears, sweat, urine. The patient may feel that this is a side effect of the drug and thus withdraw the treatment and hence suffer from MDR TB.

This not only possesses a threat to the patient's life but such a person may transmit the infection to others who may also suffer from MDR TB. The cost of treating MDR infection increases while life span of the person and success of cure decreases.

LET US ALL PREVENT TB

ACTIONS TO BE TAKEN ARE

In order to reduce exposure in households where someone has infectious TB, the following actions should be taken whenever possible:

1. Houses should be adequately ventilated . (This is because the TB bacillus gets killed on exposure to sunlight)
2. People should be educated on cough etiquette and respiratory hygiene and should follow such practice at all times.

While smear positive, TB patients should:

4. If possible, sleep alone in a separate, adequately ventilated room
5. Spend as little time as possible on public transport and public places.

DOT: DIRECTLY OBSERVED THERAPY

Well trained people from public health department provide treatment for TB in DOT centres.

In DOT centres, the patient has to take the drug under the supervision of a doctor/nurse. This has following

advantages:
1. It decreases chances of self medication and hence discontinuation of therapy by patient due to effects of drugs.
2. Counselling by doctors and nurses helps in boosting confidence in patients and their path towards recovery.
3 .It decreases chances of treatment failure.

TREATMENT REGIMEN

There are 4 categories of TB patients-
Category 1-Sputum positive and patients with extrapulmonary TB.
Category 2-Relapsed and interrupted treatment cases.
Category 3-Less severe pulmonary TB.
Category 4-Smear positive cases after completing fully supervised treatment.
When a patient is sputum smear test positive the treatment includes first line agents: isoniazid, pyrazinamide, ethambutol, rifampicin and streptomycin for 2-3 months. These drugs have high efficacy and low toxicity. After the sputum test becomes negative, a continuous phase for 6 months with isoniazid and rifampicin is given. The treatment prolongs for a period of 9 months to 1 year.
Second line agents include drugs like ethionamide, moxifloxacin, kanamycin, amikacin, cycloserine, para amino salicylic acid etc.

WHY IS IT DIFFICULT TO CURE TB?

Recent studies indicate that Mycobacteria divide asymmetrically to give daughter cells of different sizes and different susceptibility to antibiotics. The bacteria mutate very fast to develop resistance.

THEREFORE AS THEY SAY"PREVENTION IS BETTER THAN CURE"-SO BY MAINTAINING A HEALTHY LIFESTYLE,BY NOT SPITTING ON ROAD, FOLLOWING RESPIRATORY ETIQUETTES CAN PREVENT TB EPIDEMIC IN INDIA.

THE SURVEY

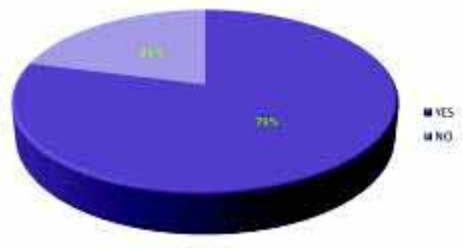
OBJECTIVES

1) To create awareness about TB.
2) To know the myths about TB in Indian society and try to eliminate them.
3) To spread a word of preventive measures for TB.

EXPERIMENTAL METHODS

A survey was conducted on 282 individuals taking into account all age groups and class of people. The questionnaire consisted of 12 questions about symptoms of TB, means of its transmission, individuals attitude towards TB patients, DOT centres, preventive measures.

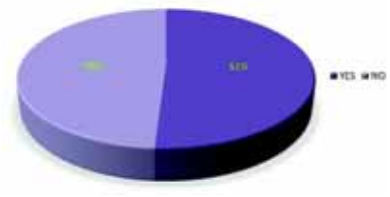
RESULTS



79% people were aware that air exhaled through coughing or sneezing by infected person is responsible for its spread.

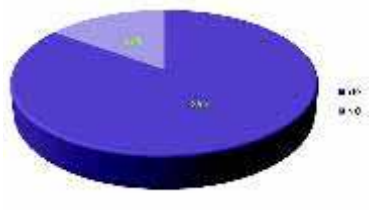
Cerebrating METizans

Eureka!



51% of people said that a person suffering from TB will try to hide it from others in fear of losing his Job or because people will avoid him/her.

Only 25% of the people were aware that a persistent cough lasting for more than



85% of the people said that they will take care of their relative who is suffering from TB or has completed antiTB therapy without fear of contracting the disease or for earning a bad name in the society.

67% of the people were not aware about the purpose of a BCG vaccine.

53% of the people were not aware about the prevelance of DOT centres.

SUMMARY

Majority of the people who were surveyed had the basic knowledge about TB. However, there were some people who thought that TB can spread by sexual contact or by skin contact and hence the best way is to avoid TB patients. They were told that their notions were incorrect and were enlightened with facts as described in information brochure above. Since almost 50% of the people thought that person suffering from TB will try to hide it from others in fear of losing his job or because people will avoid him/her.

They were told that it is best to reveal their illness and initiate treatment as soon as possible and that family and friends should be supportive to boost confidence in patients and help in their easy recovery. It is good to know that we are willing to help our relatives who may suffer from TB in every which way possible. People had poor knowledge about

DOT centres and BCG vaccine and were educated about the same by students conducting the survey and by providing above information brochure.
Amongst the people being surveyed, 2 TB patients were encountered. It is good to know that they take precautions so that they do not infect others.
We wish them good health and a speedy recovery.

THE DOCTOR SAYS...**MDR TB**

Definition
Multi drug Resistant (MDR) TB is defined as TB which is resistant to two major anti tuberculosis drugs isoniazid and rifampicin.

Prevalence
About 1 lakh people are diagnosed with MDR TB in India every year.Government and municipal hospital OPDs often encounter 4 to 5 patients of MDR TB in a day.

Causes of MDR TB
In our country where MDR TB and now extreme drug resistant TB (XDR) and Totally drug resistent TB (TDR) are emerging,the cause is more than a natural disaster! Drug resistent bacilli can be due to poor prescription of drugs such as prescibing only 2-3 drugs in a new case or adding only one new drug in a known patient with MDR TB.At times drugs prescibed are not easily available or at times patients do not buy drugs because of poor financial status. Often poor compliance to therapy and inadequate knowledge add on to the burden of drug resistance.

Treatment
Involves the use of aminoglycosides such as streptomycin, amikacin, kanamycin and capreomycin; quinolones such as ciprofloxacin, ofloxacin, moxifloxacin; ethambutol , pyrazinamide, cycloserine, ethionamide and PAS based on culture and sensitivity reports. The regimen normally involves the use of 6 drugs including a quinolone and an aminoglycoside. The aminoglycoside should be continued for 2 months and the duration of the treatment is to continue for 18 months after seroconversion/ negative cultures.

Dr. Abhishek Bhargav
Consulting Physician and Critical Care Specialist

TRIPLE NEGATIVE BREAST CANCER

Introduction
A biopsy examination of the suspected tumor helps the pathologists to look for typical cancerous characteristics. Microscopic examination showing uncontrolled division of cells is diagnosed as cancerous. The pathologist will look for the status of three breast cancer specific markers, the estrogen receptor (ER), progesterone receptor (PR), and a form of the epidermal growth factor receptor (HER2). These are significant proteins in the design of treatment regimens for breast cancers.
Triple negative (TN) breast cancer is an aggressive subtype of breast cancer that accounts for 10-15% of breast cancer cases. The term "triple negative" describes tumors that do not produce significant amounts of any of the proteins listed above; TN tumors are **ER minus (ER-), PR minus (PR-), and HER2 minus (HER2-).** The reasons for the differences in TN breast cancer occurrence in different populations is not yet clear but is a dynamic area of research.

Receptor Status

Estrogen Receptor (ER) and Progesterone Receptor (PR)

Female sex hormones estrogen and progesterone bind to ER and PR, respectively. These hormones are produced by the ovaries and contribute majorly in stimulating cell division in breast cells. Estrogen and progesterone bind to their respective receptors and directly stimulate genes that regulate cell division. Breast tumor cells showing positive (+) hormone receptor status have high levels of ER and PR, probably resulting in a faster growing tumor. These types of breast cancers are treated with hormone therapy. However, TN breast tumors do not have high levels of these hormone receptors.

Human Epidermal Growth Factor Receptor 2 (HER2)

HER2 is a receptor protein located on the surface of breast cells. Growth factors bind to these receptors and stimulate cell growth and division. Breast tumor cells with a positive (+) HER2 status have high levels of HER2 on their surface. This may result in an increased ability of cells to grow and spread. These types of breast cancer can be treated with a type of targeted therapy using monoclonal antibodies like Trastuzumab. TN breast tumors have low levels of HER2.

Prognosis

Theoretically, TN tumors should have a better prognosis than tumors expressing ER, PR, or HER2 because they are not receiving the growth signals provided by these proteins. But this is not the case breast cancers expressing ER, PR, or HER2 can be treated with drugs that inhibit the function of the receptors (i.e. Herceptin®, tamoxifen). The TN subtype of breast cancer shows no responsive to the available targeted treatments and currently no specific treatment guideline exists for this tumor type. Studies have shown that TN tumor cells may be more belligerent than other breast cancer subtypes, but the reasons for this are unknown. Treatment unavailability and aggressive nature of the tumor cells make TN breast cancer more difficult to treat.

Characteristics of TN breast cancer cells

TN breast cancers tend to share additional features that can impact tumor growth or treatment. Some of these characteristics are described below:

Nuclear Grade

The shape and size of the nucleus of a cancer cell provides an indication of how an abnormal cell is likely to behave. TN tumors are more likely to be 'high grade', indicating more severe abnormalities.

Mitotic Index

This is a measure of how rapidly the cells in the tumor are dividing. It is determined by calculating the ratio of cells dividing to cells not dividing (in the viewed samples).

A higher mitotic index may possibly indicate a more rapidly growing tumor. TN tumors often have a high mitotic index.

Differentiation State

This describes whether or not the cancer cells 'look' like normal cells from the tissue of origin. As an example, Liver cells have specific functions and therefore do not look like breast cells. Cancer cells often lack the structure and function of the normal cells from which they arise. TN cancer cells are often 'poorly differentiated' which means they no longer look/function like normal breast cells.

Characteristics of TN breast cancers

Age at Diagnosis

TN patients are often diagnosed at a younger age than other breast cancer patients (average age at diagnosis: 53 to 57.7 years of age)

Tumor Size

TN tumors tend to be larger when the cancer is detected than other breast cancer
(2.1 cm to 3 cm)

Tumor Grade

TN tumors more likely to be grade III than other breast cancer subtypes (28% to 66%)

Node Positivity (regional metastasis)
Lymph nodes near the tumor are more likely to test positive for the spread of cancer in TN breast cancer patients than other subtypes (45.6% to 54.6%)

Line of treatment
There is a general trend of treating a cancerous condition which is to be followed in curing ER+, PR+ and HER2+ diagnosed cancers.
I. Mastectomy (surgical removal of the affected breast) or lumpectomy (surgical removal of the affected part of a breast)
II. Chemotherapy
III. Radiation
But treatment of TN breast cancer requires a special line of treatment. The steps are as follows-
I. Chemotherapy
II. Surgical removal
III. Radiation
By far, the medical arena lacks drugs which specifically targets ER-, PR-, and HER2- tumors. Pharmacologists and scientists are working on the discovery of drugs which can successfully decrease the malignancy and thereby reduce the risk of fatality of TN breast cancer patients. The existing anticancer drugs are not effective per se on this form of breast cancer.

Arjav Modi
(T Y B Pharm)

Women and Cancer

Cancer is the abnormal growth of cells. Cancer is the most dreaded diseases that falls under the genre of lifestyle diseases that has rapidly grown.
One of the recent concerns plaguing the field of oncology is the increasing incidences of women who are being diagnosed with cancer. It was estimated that the number of cervical cancer deaths in women in India was likely to rise to 79,000 by the year 2010, while the number of deaths due to breast cancer and oral cancer would rise to 59,000 and 53,000 respectively. The most common are breast, cervical, ovarian and uterine cancer.

The major cause of cancers in women is hormonal imbalance. Estrogen and progesterone are female sex hormones. One of progesterone's most important roles in the body is to balance or oppose estrogen. Other causes include uptake of contraceptives, long term estrogen therapy, hereditary reasons, smoking, presence of uterine fibroids and late pregnancies.

Breast Cancer, which is the second most common cancer makes up for almost nine per cent of all new cancer cases in India. Some symptoms if earlier recognized can prevent fatal conditions including self examinations, changes in nipple shape or unexplained discharge, breast lumps or skin thickening, underarm tenderness or skin changes, dimpling of the skin or changes to breast texture or shape.

Endometrial cancer occurs within uterus and is common among older women who are obese, are on hormone replacement therapy and have stopped ovulating. Symptoms mainly include unusual bleeding or discharge from vagina. If only the uterus is affected, surgical removal of the uterus (hysterectomy) is performed. Radiation therapy and chemotherapy are done in later stages.

Cerebrating METizans

Eureka!

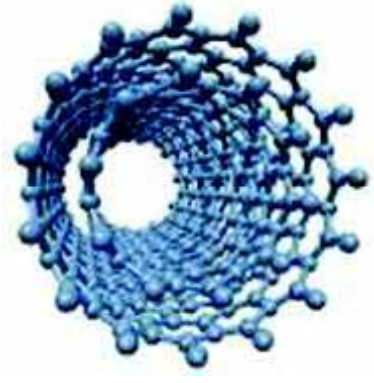
Most **ovarian cancers** occur in menopausal women around the age of fifty. Ovarian cancer is particularly dangerous because by the time it is diagnosed it is likely to have metastasized. Symptoms include swelling and pain in lower abdomen, occasional breathlessness, loss of weight and backache. The vast majority of women diagnosed with first and second stage ovarian cancer survive with proper treatment. If the cancer is caught in the first stage, cure is possible through surgery. This is supplemented with radiation for second-stage cancers.

Cervical cancer occurs in the cervix, the canal between the vagina and the uterus. This is the most common cancer among Indian women. The symptoms are blood in vaginal discharge, unusual bleeding between periods or after intercourse. The cervix is often removed through surgery or radiography is useful in second and third stages.

Cure: Vaccines were developed for cervical cancers as another preventive measure. Caused due Human Pappiloma virus i.e. HPV, the vaccine is made from tiny proteins that look from outside similar to HPV. It also contains Aluminum, Sodium Chloride (salt), and water, L-histidine, Polysorbate 80 and Borax, to stimulate the immune system and keep the vaccine stable and suitable for injection. The cervical cancer vaccine is given as three injections in the upper arm.
The vaccine works best if it is taken over a six-month period, So far 1.4 million doses of Cervarix® have been given to people in the UK, and millions have received the jab around the world.
It involved a major controversy in India which when administered to 120 school going girls in Andhra Pradesh and Gujarat led to death of 4 girls. The girls complained of stomach disorders, epilepsy, headaches and early menarche. Women activists fear the vaccine may impact the mental health of girls who have shown no signs of distress so far. Thus the programme was immediately suspended by the Indian Council of Medical Research (ICMR) and is under further clinical trials.
Finally the only way to fight cancer is regular screening after 30 plus for all women. Hospitals like Tata Memorial hospital also have free screenings thus a major aid to economically backward classes.
So women, just eat the right food, exercise, maintain hygiene and take good care of yourselves which we otherwise always have as our last priority!!!

Bhavini Panchal
(T Y B Pharm)

Fullerenes-Bucky Balls



A fullerene is a molecule which is composed only of carbon atoms. Fullerene is a hollow sphere, ellipsoid or tube. Spherical fullerenes are also called buckyballs. Cylindrical ones are called carbon nanotubes . Nature produces fullerenes by lightning discharges and thus very small quantities of fullerenes of C_{60}, C_{70}, C_{76}, C_{82} and C_{84} molecules occur in nature.
In 1996 Sir Harry Kroto received Nobel Prize in Chemistry for the discovery of fullerenes and commented "As I long suspected, fullerenes have existed since time immemorial in the dark recesses of our galaxy."
In 2010, fullerenes were detected in a cloud of cosmic dust surrounding a distant star 6500 light years away with help of NASA's Spitzer infrared telescope.
Bucky balls derived their name after Richard Buckminster Fuller.

Types of Fullerenes

- Buckyball clusters: smallest fullerene contains C_{20} and the most common is C_{60}.
- Nanotubes: they are stereochemically hollow tube with vast applications in electronics industry.

- Polymers: polymers are formed under high-pressure high-temperature conditions.
- Nano "onions": they are spherical particles which have multiple carbon layers surrounding a buckyball core and used as lubricants.
- Linked "ball-and-chain" dimers: two fullerenes linked by a carbon chain.
- Boron buckyball: A type of buckyball which uses boron atoms, instead of the usual carbon, was predicted and described in 2007. The B_{80} structure, with each atom forming 5 or 6 bonds, is predicted to be more stable than the C_{60} buckyball.B-80 is actually more like the original geodesic dome structure popularized by Buckminster Fuller, which uses triangles rather than hexagons.

Uses of Fullerenes

Right Stuff For Space Ships

Imagine you have a substance which has hundred times strong than steel, yet constitutes just one-sixth of its weight which generates and stores electricity! Each pound trimmed from a spaceship is each pound less that will not have to be propulsed from spacecraft. This in turn reduces weight and thus its cost. This material is nothing but our very own buckyball nanotubes!

Materials that make up a space ship could be embedded with nanometre sensors that constantly monitor pressures exerted on its material. Therefore, if some part of spaceships starts to fail, the information is passed to central computer before tragedy strikes.

The spaceship is always under a threat of colliding with asteroid or comets. However, a spaceship made up of fullerenes is self healing and keeps the cabin air tight.

Treatment of Cancer

Fullerenes can be chemically altered to incorporate functional groups like L-phenylalanine, folic acid, and L-arginine. The purpose for this is to increase their solubility. . Cancer cells easily take up these molecules at an increased rate because of an upregulation of transporters in the cancer cells. Once inside the cells, on exposure to light radiation they generate oxygen free radicals which triggers apoptosis in cancer cells. This leads decrease in size of tumor. Once the radiation therapy is completed, fullerenes may reabsorb free radicals to prevent damage to surrounding tissues.

Antiviral Activity

Fullerenes inhibit HIV protease enzyme in viruses. HIV protease enzyme is responsible for cleaving the viral DNA into head, body and enzymes once the virus has replicated in the host.

Fullerene in Gene and Drug Delivery

Fullerenes belong to the class of inorganic nano-particles. The fullerene core is hydrophobic, while the functional groups like amino acid attached to the core are hydrophilic and thus the molecule becomes hydrophilic and is capable of carrying drugs and genes for the cellular delivery.

Bijal Dalal
(T Y B Pharm)

Acetaminophen Toxicity

Drug Testing Advisory Board (DTAB) recommended limiting the amount of paracetamol in prescription combination products to not more than 325mg per tablet or capsule . It gave warning of potential severe liver injury and allergic reaction (eg. swelling of face, mouth and throat, difficulty in breathing, itching, rash).

Paracetamol (PCM) is widely available and has been under clinical use since the 1950s. It is a safe drug and also widely prescribed. Being a common OTC drug, it is often taken in excess. The maximum tolerable dose PCM is approximately 4 gm/day.

Paracetamol overdose can be:

• Planned overdose- sometimes people take too much PCM on purpose to harm themselves.
• Unplanned overdose (accidental) - taking too much or for too many days in a row; taking more than one concomitant medicine at a time(all of which may contain PCM); taking extended release forms repeatedly.
PCM toxicity can be asymptomatic at first. However, as it progress, the following clinical

First 24 hours	24 to 72 hours after the overdose	72 to 96 hours after the overdose
Nausea, vomiting, stomach pain, loss of appetite, paleness, tiredness, sweating.	Right upper quadrant abdominal pain, anorexia, dark coloured urine, urinating less often than normal, skin and eye turns	Jaundice, hypoglycemia, fever, fainting, tachypnoea, blurred vision, tachycardia, confusion, coma.

picture is seen:
Damage to liver (hepatotoxicity), results from PCM and its metabolites, N-acetyl-p-benzoquinone imine (NAPQI). NAPQI depletes the liver's natural antioxidant glutathione and directly damages liver cells, leading to liver failure.

Treatment is aimed at removing the PCM from the body and replacing glutathione. Other methods include:

1. Gastric lavage.
2. Use of activated charcoal to adsorb acetaminophen within one hour of its ingestion.
3. Antidote acetylcysteine acts as a precursor for glutathione and also supplies thiols that function as antioxidants, helping the body regenerate enough to prevent damage to the liver.

Patient counselling and role of Pharmacist:

- Educate the patient about the maximum permitted dose per 24 hours (i.e. 8 tablets of 500mg each with spacing of 3 hours) and associated liver toxicity with long terms use of PCM.
- Check all prescriptions for multiple products containing PCM.
- Do not take PCM for more than 10 days to treat pain or for more than 3 days to treat a fever, unless prescribed by physician.
- Inform patients to read label carefully and identify the active ingredients, so that they can keep a check whenever they are using more than one OTC products concomitantly.

Dinesh M Choudhary
(T Y B Pharm)

Vismodegib-Drug Discovery of The Year

A pharmaceutical company Genentech, based in San Francisco, California discovered a synthetic drug called Vismodegib, for the treatment of basal cell carcinoma - a type of skin cancer. Vismodegib (Erivedge®) is an investigational medicine designed to selectively target abnormal Hedgehog signaling pathway which is implicated basal cell carcinoma. It represents the first Hedgehog signaling pathway targeting agent to gain U.S. Food and Drug Administration (FDA) approval.

Need of drug

Basal cell carcinoma (considered malignant) is the most common type of skin cancer in Europe, Australia and the United States. Most basal cell cancers occur on that part of skin which is most exposed to sunlight or other ultraviolet radiation .It grows slowly and is usually painless. Metastasis or mortality due to BCC is rare. But, it may advance further into surrounding areas such as sensory organs (ears, nose and eyes), bone, or other tissues.If the disease is left untreated or recurs in the same location after surgery or radiotherapy. In some cases treatment with surgery or radiation of advanced basal cell carcinoma may lead to the loss of sensory organs and their functions such as eyesight or hearing.

Proposed Mechanism of Action by Drug

The Hedgehog signalling pathway usually becomes less active as person grows older and functions in maintaining and repair of tissue. However in some people malfunctions or abnormal activation takes place leading to malignancies. Vismodegib is based on targeted therapy that is to attack the cancer cells without damaging the normal cells thus leading to fewer side effects. Vismodegib inhibits the Hedgehog signaling pathway. In more than 90% of BCC, the Hedgehog signaling pathway is abnormally upregulated. Mutations in key receptor proteins result in abnormal transcription of target genes that regulate basal cell growth and proliferation. Vismodegib acts as an antagonist to prevent transcription factor activation, blocking the signaling cascade.

Adverse Events

In the Phase I clinical trial, adverse events included fatigue, hyponatremia, muscle spasm and atrial fibrillation. No dose-limiting toxic effects or grade 5 (death related) events were observed during the study period. In the Phase II clinical trial, adverse events included muscle spasms, alopecia, dysgeusia (taste disturbance), weight loss and fatigue. Patients receiving vismodegib were significantly more likely experience adverse events compared to placebo, including hair loss, weight loss $>5\%$, muscle cramps, and taste disturbance. Most adverse events were mild or moderate in severity, and no grade 5 events were observed.

Conclusion

Vismodegib is used to treat aggressive basal cell carcinoma. The addition of this drug to the therapeutic armamentarium for recurrent, invasive or metastatic basal cell carcinoma gives a new ray of hope to the patients.

Chinmayi Naik
(S Y B Pharm)

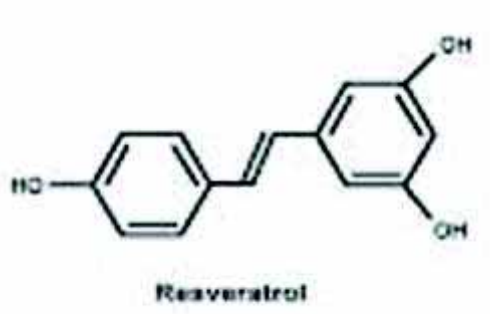
Resveratrol – A miracle molecule

Resveratrol is a naturally occurring phyloalexin produced by some plants in response to an injury or pathophysiologyical conditions. Alexin means "to protect" and resveratrol does have alexin like activity for humans. Resveratrol naturally occurs from skin of red grapes (*Vitis vinifera*). Wine is most notable dietary source since 1floz of red wine contains approximate 160 picograms of resveratrol.

Roots of white hellebore and peanuts also contain resveratrol.Researchers at the university of Alabama found that the diabetics with nerve damage improved significantly simply by incorporating peanuts and other myoinositol-rich foods into the diet.

Resveratrol content in different food and beverages is as follows:
Grapes: 1500(μG/100G), OyG/125 ml)
Red wine: 625 (μG/100G), OyG/125 ml)
White wine: 38(μG /100G), OyG/125 ml)
Grape juice: 65(μG/100G), OyG/125 ml)
Cranberry juice: 65(μG /100G), OyG/125 ml)

Pharmacological uses:
Different varieties of red grapes differ in resveratrol concentration, their values ranging from 1-13 mg/wt. Resveratrol induces phase II detoxification enzymes that have shown to inhibit proliferation of hepatoma cells.



Resveratrol

Resveratrol acts on sirtuin receptors. Sirtuins can regulate steroid hormone signaling through a variety of molecular mechanisms, including acting as co-regulatory transcription factors, deacetylating histones in the promoters of genes with nuclear receptor binding sites, directly deacetylating steroid hormone nuclear receptors, and regulating pathways which modify steroid hormone receptors through phosphorylation. Furthermore, disruption of sirtuin activity may be an important step in the development of steroid hormone-refractory cancers. Resveratrol has also shown to inhibit development of preneoplastic lesions when mice were exposed to tumor initiators and promoters. It interferes with all the stages of carcinogenesis-initiation, promotion and progression. It reduces proliferation rate and increases apoptosis in cancer cell lines in dose dependent manner.COX-2 is antiapoptotic and is implicated in malignancy. Resveratrol induces COX-2 accumulation in human breast cancer cells. The induction of COX-2 accumulation by Resveratrol is mitogen activated protein kinase .COX-2 in turn co localizes proteins that facilitate apoptosis in cancer cells. Resveratrol is partial estrogen receptor agonist but in presence of estrogens it acts as an antagonist to receptor resulting in breast cancer inhibition.

Resveratrol has also shown to revitalize nerve cellsand is also active against herpes simplex virus (type 1 and 2).
It also inhibits viral replication.

Resveratrol is an antioxidant, antinflammatory and antiplatelet agent. Research has shown that resveratrol when added to growth culture of yeast; it increases cell life span of yeast by 80%. Generally yeast live for 19 generations but addition of resveratrol increased their life expectancy to 38 generations.
It also has anti-aging qualities, but the major dietary source of resveratrol, that is red wine, has major disadvantage of

being an alcoholic drink which can be abused.

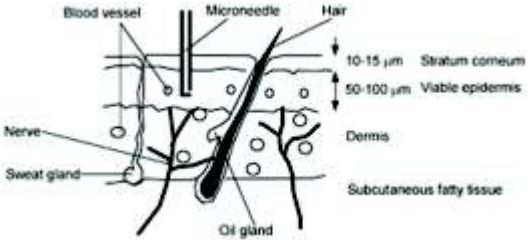
Resveratrol is also an antidiabetic and perhaps the most powerful naturally occurring anti cancer substance. It is proposed that a daily 10mg dose is associated with reduction in insulin resistance in type2 diabetes.
Resveratrol as the latest nutraceutical is so good that drug companies are trying to mimic its molecules!

Bijal Dalal
(T Y B Pharm)

Microneedles-An emerging transdermal drug delivery system

What are microneedles?

Microneedles are extremely small needles used to draw blood or administer drugs without penetrating the skin and underlying tissue as deeply as traditional hypodermic needles or syringes.



When used for medical purposes, rows of several hundred microneedles are put onto tiny patches that are then applied to the skin. The microneedles make microscopic holes in the outermost layer of the skin, and either draw minute quantities of blood or deliver a drug, a process called transdermal drug delivery.

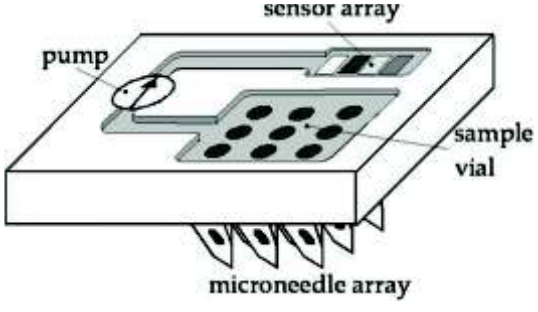
Methods for manufacturing these microneedle devices include micromoulding, microfabrication, microshaping and combinations thereof. Microneedles are fabricated using a microelectromechanical system employing silicon, metals, polymers or polysaccharides. Solid coated microneedles can be used to pierce the superficial skin layer followed by delivery of the drug.

Microneedles- as a transdermal drug delivery system

One of the thrust areas in drug delivery research is transdermal drug delivery systems (TDDS) due to their characteristic advantages over oral and parenteral drug delivery systems
Transdermal drug delivery has proven to be of great therapeutic utility.

A TD patch can provide continuous drug administration, minimizing peaks and troughs in plasma levels throughout the day. TD systems can take the place of more risky and invasive injection-based drug delivery, thus improving regimen compliance. Moreover, they are more efficient, use less medication, and are less variable compared with some oral medications that undergo presystemic metabolism.
Microneedles (MNs) represent a unique technological approach to enhance drug permeation across the subcutaneous(SC) membrane.

Thus, solid MNs produce a grid of holes, or micropores, through which medications delivered via a standard patch, may be delivered to the skin for local or systemic drug absorption.



Advantages

1. Microneedles have been used for TD delivery of small molecules, macromolecules such as peptides and proteins viz. insulin, growth

hormones, immunobiologicals. proteins, DNA, and vaccines for systemic action.
2. Microneedles containing 'cosmeceuticals' are currently available to treat acne, pigmentation, scars and wrinkles, as well as for skin tone improvement.
3. They cause minimal pain and trauma compared to traditional needles and are used for various medical purposes like immunizations, pain management, and blood glucose monitoring.
4. Microneedle therapy is a way to rejuvenate the skin without destroying the epidermis.
5. Potential benefits of using microneedle delivery include reduced pain perception (and hence patience compliance), improved pharmacokinetic and bioavailability profiles.
6. Dissolving microneedles can be designed to gently encapsulate molecules, insert into skin, and enable bolus or sustained release delivery (used in the treatment of intraocular lymphoma).

Hence, MN have a number of potential benefits for patients, clinicians, and the pharmaceutical industry as compare with alternative delivery methods.

Rutu Desai
(T Y B Pharm)

Nanoparticles

Nanoparticle research is currently an area of intense scientific interest due to a wide variety of potential applications in biomedical, optical and electronic fields. They are also of great scientific interest as they are effectively a bridge between bulk materials and atomic or molecular structures.

The use of nanoparticle distributions in laser dye-doped with poly-methyl methacrylate (PMMA) laser has been shown to improve conversion efficiencies and to decrease laser beam divergence.

A method being developed to fight skin cancer uses gold nanoparticles to which RNA molecules are attached. The nanoparticles are contained in an ointment that is applied to the skin. The nanoparticles penetrate the skin and the RNA molecules attach to a cancer related gene. This method stops the gene from generating proteins that are involved in the growth of skin cancer tumors.

The use of nanotechnology in medicine and more specifically drug delivery is set to spread rapidly. Currently many substances are under investigation for drug delivery and more specifically for cancer therapy. Interestingly pharmaceutical sciences are using nanoparticles to reduce toxicity and side effects of drugs.

For nanoparticles, the situation is different as their size opens the potential for crossing the various biological barriers within the body. From a positive viewpoint, especially the potential to cross the blood brain barrier may open new ways for drug delivery into the brain. In addition, the nanosize also allows for access into the cell and various cellular compartments including the nucleus. A multitude of substances are currently under investigation for the preparation of nanoparticles for drug delivery, varying from biological substances like albumin, gelatin and phospholipids for liposomes, and more substances of a chemical nature like various polymers and solid metal containing nanoparticles. It is obvious that the potential interaction with tissues and cells, and the potential toxicity, greatly depends on the actual composition of the nanoparticle formulation. Besides the potential benefits, also attention is drawn to the questions as to how we should proceed with the safety evaluation of the nanoparticle formulations for drug delivery.

The kind of hazards that are introduced by using nanoparticles for drug delivery are beyond that posed by conventional hazards imposed by chemicals in classical delivery matrices. For nanoparticles the knowledge on particle toxicity as

obtained in inhalation toxicity shows the way how to investigate the potential hazards of nanoparticles. The toxicology of particulate matter differs from toxicology of substances as the composing chemical(s) may or may not be soluble in biological matrices, thus influencing greatly the potential exposure of various internal organs. This may vary from a rather high local exposure in the lungs and a low or negligible exposure for other organ systems after inhalation. For such testing the lessons learned from particle toxicity as applied in inhalation toxicology may be of use. Although for pharmaceutical use the current requirements seem to be adequate to detect most of the adverse effects of nanoparticle formulations, it cannot be expected that all aspects of nanoparticle toxicology will be detected. So, probably additional more specific testing would be needed.

Mamta Parekh
(S Y B Pharm)

Nasal Vaccine

Cough and cold are very common nowadays and many people seem to think that it is a minor symptom and soon would be all right…

We experience sneezing, coughing, fever, chills, fatigue, aches, sore throat, running nose etc. These can be an indication of array of diseases of which may be are unknown to a common man.
Influenza, an air borne disease is characterized by high fever, cold, cough and even pneumonia. Each year thousands of people die from influenza and even more require hospitalization.
There are only a few approved vaccines that provide optimal protection against various viral and bacterial pathogens, since it has low immune response at mucosal surfaces such as the nasal passage.
Lymphoid structure in respiratory tract of humans called Waldeyer's ring is an important induction site for immune responses.

Herein comes the nasal vaccine!

Recently, nasal vaccine has been a great alternative for injections. Nasal vaccination has the advantage that it elicits both local and systemic immune responses. The mucosal immune response is rapid and nasal vaccines may also cause protection in distant mucosal sites. Injected vaccines stimulate the systemic immune response, but it does not provide mucosal immune protection.

Nasal route for vaccine is very efficient for prevention of many respiratory diseases. Through nasal route it is very easy for the vaccine to reach to the lungs, bronchi, alveoli which are the major sites for the cause of various diseases.
It helps in clearance of the antigens that have been present in the respiratory tract and other sites.

1. The application of mucosal vaccines can induce immune responses at both systemic and mucosal sites, and therefore may prevent not only infectious disease, but also colonization of mucosal surfaces. Intranasal is more effective than intragastric immunization since it generates earlier and much stronger mucosal immune response . Nasal lymphoid tissue may retain long-term immune memory.
2. Non invasive and patient compliant.
3. Another important concern is the need for expensive refrigeration for the handling of most of the currently used vaccines. It is necessary to encourage the development of mucosal and dry-powder vaccines but to become a viable replacement to injection.

However, unit-dose device for nasal delivery are likely to be too expensive and unsuitable for extensive public vaccination program.

The use of nasal vaccine abstains the discomfort and hazards associated with injection and also provides improved local immune protection and cross protection at various mucosal sites. It is important to improve distribution to the nasal mucosa, while at the same time limiting deposition outside the target sites. This balance is necessary in improving the reproducibility, safety, clinical efficacy and patient compliance of nasally delivered vaccines and potent drugs.

Chitosan-An adjuvant in nasal vaccines-
Chitosan is a cationic polysaccharide which has shown to induce significant serum IgG response and secretory IgA levels superior to those induced by parenteral administration.
High doses of antigen are required to generate even modest responses in oral delivery. In contrast in nasal delivery, along with a range of adjuvants shows potent immune responses to protect against infection.

Advantages
1) They are efficient as the use of syringes have been avoided, i.e. needle free vaccination
2) Non invasive
3) Fast onset of strong immune response as the vaccine directly comes in contact with the mucosa, it is protects and induces immunity to the pulmonary tract.
4) Also rapid absorption since mucosa is highly vascularized and has large surface area.
5) Lack of hepatic first-pass metabolism
6) Mucosal and systemic immune responses are generated.

Disadvantages
1) Narrow nasal entrance.
2) Variable dosing with traditional delivery methods.
3) Nasal inflammation and obstruction.

Precautions
1) It should not be administered to children and adolescents with severe asthma or active wheezing.
2) It should not be administered to infants and toddlers younger than 12 months.
3) Vaccine recipients should attempt to avoid close accusation with severely immunocompromised individuals (e.g. Bone marrow transplant patients) for 1-2 weeks following the vaccination.

Contraindications or Drawbacks

1) Nasal vaccines cannot be used in patients who have hypersensitivity to the active substances or to any of the excipients (eg.gelatin)
2)Children and adolescents who are clinically immunodeficient due to certain conditions or who are on immunosuppressive therapy such as acute and chronic leukemia, lymphoma, symptomatic HIV infection.
3) People taking high doses of steroids.

Mamta Parekh
(S Y B Pharm)

Epigenetics

Epigenetics is the study of genetic changes in gene expression or cellular phenotype. It refers to functionally pertinent modifications to the genome that do not involve a change in the nucleotide sequence. Such modifications are DNA methylation and histone modification; however, there is no change in the original DNA sequence of the organism; these modifications serve to regulate gene expression without varying the basic DNA sequence. These changes may remain through cell divisions for the rest of the cell's life and may also last for multiple generations.
It was demonstrated that the methylation of mRNA play a decisive role in human energy homeostasis .It is now defined as, "the study of mitotically and/or meiotically heritable changes in gene function that cannot be explained by changes in DNA sequence."

Molecular Basis

Epigenetic changes can alter the activation of certain genes, but not the sequence of DNA. Additionally, the chromatin proteins associated with DNA may be activated or silenced. The differentiated cells in a multi-cellular organism express only the genes that are necessary for their own activity. Epigenetic changes are preserved when cells divide. Most epigenetic changes only occur within the course of one individual organism's lifetime, but, if gene deactivation occurs in a sperm or egg cell that results in fertilization, then some epigenetic changes can be transferred to the next generation.

Applications

Paramutation, bookmarking, imprinting, gene silencing, X chromosome inactivation, position effect, reprogramming, transvection, maternal effects, the progress of carcinogenesis, and many effects of teratogen.
Molecular biologic techniques used in epigenetic research are regulation of histone modifications and heterochromatin, and cloning, chromatin immunoprecipitation, fluorescent in situ hybridization, methylation-sensitive restriction enzymes, DNA adenine methyltransferase identification and bisulfite sequencing bioinformatics (computational epigenetics).

Epigenetic Effects In Humans

I. Cancer and development abnormalities

Epigenetic carcinogens result in an increased incidence of tumors, but they do not show mutagen activity. Examples diethylstilbestrol, arsenates, hexachlorobenzene, and nickel compounds.

Vidaza, a formulation of 5-azacytidine (an unmethylalable analog of cytosine that causes hypomethylation when incorporated into DNA) states that "men should be advised not to father a child" while using the drug, citing evidence in treated male mice of reduced fertility, increased embryo loss, and abnormal embryo development. In rats, endocrine differences were observed in offspring of males exposed to morphine. In mice, second generation effects of diethylstilbesterol have been described occurring by epigenetic mechanisms.
Alterations in histone acetylation and DNA methylation occur in various genes influencing prostate cancer. Gene expression in the prostate can be brought under control by nutrition and lifestyle changes.

II. DNA methylation in cancer

Aberrant DNA methylation is associated with unscheduled gene silencing, and the genes with high levels of 5-methylcytosine in their promoter region are transcriptionally silent. DNA methylation is essential during embryonic development, and in somatic cells, patterns of DNA methylation are in general transmitted to daughter cells with a high fidelity. Aberrant DNA methylation patterns have been associated with a large number of human malignancies and found in two distinct forms: hypermethylation and hypomethylation compared to normal tissue. Hypermethylation is

one of the major epigenetic modifications that repress transcription via promoter region of tumor suppressor genes. Hypermethylation typically occurs at CpG in the promoter region and is associated with gene inactivation. Global hypomethylation has also been implicated in the development and progression of cancer.

III. Histone variants H2A in cancer

The histone variants of the H2A family are highly conserved in mammals, playing critical roles in regulating many nuclear processes by altering chromatin structure. A high level of H2A.Z expression is ubiquitously detected in many cancers and is significantly associated with cellular proliferation and genomic instability.

IV. Cancer treatment

Epigenetic pharmaceuticals could be a putative replacement or adjuvant therapy along with radiation and chemotherapy, or could enhance the effects of these current treatments. The epigenetic control of the proto-onco regions and the tumor suppressor sequences by conformational changes in histones directly affects the formation and progression of cancer. Epigenetics also has the factor of reversibility, a characteristic that other cancer treatments do not offer. Drug development has focused mainly on histone acetyltransferase (HAT) and histone deacetylase (HDAC), and has included the introduction to the market of the new pharmaceutical vorinostat, an HDAC inhibitor. Current front-runner candidates for new drug targets are histone lysine methyltransferases (KMT) and protein arginine methyltransferases (PRMT).

A study conducted on patients showed that the use of chemotherapy together with a combination of a DNA methyltransferase (such as epigallocatechin gallate and a histone deacetylase inhibitor (such as valproic acid) can distinctively modify the malignant transcriptome of blasts by inhibiting DNA hypermethylation and histone acetylation and can confer a positive prognostic impact on patients.

Epigenetics has the potential to explain mechanisms of aging, human development, and the origins of cancer, heart disease, mental illness, as well as several other conditions. Some investigators think epigenetics may ultimately turn out to have a greater role in disease than genetics.

Arjav Modi
(T Y B Pharm)

Personalized Medicines

Personalized medicine is a medical sculpt that proposes the customization of healthcare, with decisions and practices being tailored to the individual patient by use of genetic or other information.

Scenario from genetics and beyond

Traditional clinical diagnosis and management emphasizes on the individual patient's clinical symptoms, medical and family history, and data from laboratories to diagnose and treat their illnesses. This is often an immediate approach to treatment, i.e., treatment starts after the signs and symptoms appear.

Advances in human genetics have helped us enabling a more detailed understanding of the effects of genetics in disease. The field of proteomics, or the comprehensive analysis and characterization of all of the proteins encoded by the human genome, may ultimately have a major impact on medicine. This is because while the DNA genome is the information archive, it is the proteins that do the work of the cell, not genes.

Important biological functions like cell growth, death, cellular movement and localization, differentiation, etc. are controlled by a process called signal transduction. This process is nearly entirely epi-genetic and governed by protein enzyme activity. Diseases such as cancer, while based on genomic mutations, are functionally apparent as

dysfunctional protein signal transduction. Pharmaceutical interventions aim to modulate the aberrant protein activity, not genetic defect.
Historically, the pharmaceutical industry has developed medications based on empirical observations and more recently, known disease mechanisms.

'Would-be' applications

Since the late 1990's, the advent of research using biobanks has brought advances in molecular biology, technologies including proteomics, metabolomic analysis, genetic testing, and molecular medicine. It is hoped that information about a patient's proteomic, genetic and metabolic profile could be used to tailor medical care to cater his needs. In the future, tissue-derived molecular information might be combined with an individual's personal medical history, family history, and data from imaging, and other laboratory tests to develop more effective treatments for a wider variety of conditions.

Cancer management

Oncology is a field of medicine with a long history of classifying tumor stages and subtypes based on anatomic and pathologic findings. This approach includes histological examination of tumor specimens from individual patients (such as HER2/NEU in breast cancer) to look for markers associated with prognosis and likely treatment responses. Thus, "personalized medicine" was in practice long before the term was coined. New molecular testing methods have enabled an extension of this approach to include testing for global gene, protein, and protein pathway activation expression profiles and/or somatic mutations in cancer cells from patients in order to better define the prognosis in these patients and to suggest treatment options that are most likely to succeed.

Examples of personalized cancer management include:

Testing for disease-causing mutations in the BRCA1 and BRCA2 genes, which are implicated in familial breast and ovarian cancer syndromes. Discovery of a disease-causing mutation in a family can inform "at-risk" individuals as to whether they are at higher risk for cancer and may prompt individualized prophylactic therapy. More detailed molecular stratification of breast tumors may pave the way for future tailored treatments.
Minimal residual disease (MRD) tests are used to quantify residual cancer, enabling detection of tumor markers before physical signs and symptoms return. This assists physicians in making clinical decisions sooner than previously possible.
Targeted therapy is the use of medications designed to target aberrant molecular pathways in a subset of patients with a given cancer type. For example, trastuzumab (marketed as Herceptin) is used in the treatment of women with breast cancer in which HER2 protein is over expressed.

Pharmaceutical industry

Nowadays with the increasing knowledge of human genome, antibiotics can be developed such that they are sensitive to a specific microorganism. One of the applications is to treat urinary tract infections (UTI). Here in by studying the genome of the patient, it is possible to optimize the efficacy of the drug for the patient. The technologies supporting personalized medicines could enable the pharmaceutical industry to develop a more efficient drug, based on the latest research on disease pathophysiology and genetic risk factors.

Physicians

For healthcare providers, personalized medicine offers the potential to improve the quality of care, through more precise diagnostics, better therapies, and access to more accurate and up-to-date patient data. Physicians will require a solid background in genomics and proteomics to make the best use of the new data.

Arjav Modi
(T Y B Pharm)

Bombay Blood Group

Bombay Blood Group!!! Does that ring bell? Must have heard in the movie "Kahaani". Bombay blood group is a rare blood type which was named after Mumbai where it was first discovered on 1952 by Dr.Bhende.
The red blood cells of individuals possessing Bombay blood group lack A and B antigens but were found to possess another antigen that was unknown earlier.

The phenotype of Bombay blood group is HH. H antigen is precursor for formation of A and B antigen. The biosynthesis of H antigen requires an enzyme glycosyl transferase which assists in formation of oligosaccharide chains of antigens A and B. The resulting oligosaccharide chains are attached to lipids and proteins. But since RBCs of people possessing Bombay blood group do not have H antigen, antigen A and B are not formed. The cause of Bombay blood group phenotype is mutation in H genes on chromosome19 which causes a nonfunctional H glycosyl transferase. The gene is Mendelian recessive gene. A mutation that changes the code for trypsin at amino acid residue 316 of the transferase to that for a stop codon. Depending upon a person's ABO blood type, the H antigen is converted into either the A antigen, B antigen, or both. If a person has group O blood, the H antigen remains unmodified. Therefore, the H antigen is present more in blood type O and less in blood type AB. Bombay blood group is inherited because of two recessive alleles of H antigen by both parents of person.

As there are no surface antigens on RBCs, people with HH group can donate blood to people possessing A, B and O blood groups; provided the Rhesus factor is compatible.

However, they cannot receive blood from A, B and O blood type. In cases of emergency when blood transfer is required for patients possessing Bombay blood group, it is important to detect their phenotype because the usual test for ABO blood group system would show them as blood O since they do not possess A or B antigen. Receiving blood from other blood type causes transfusion incompatibilities.

About 4 people in a million may possess Bombay blood group overall the globe ,however in some places such as Mumbai locals can have occurrences in as much as 1 in 10,000. Given that this condition is very rare, any person with this blood group who needs an urgent blood transfusion will probably be unable to get it, as no blood bank would have any in stock. Those anticipating the need for blood transfusion may bank blood for their own use, but of course this option is not available in cases of accidental injury since the preservation of blood doesn't last more than 40 days.

What to do if you need Bombay Blood Group

One should start a search for Bombay blood group by following these steps.
1. Get all the family members and relatives of the patients tested for the blood group. It's possible that one or the other relative has this group.
2. Put up a request for the requirement in the leading newspapers.
3. One should visit big and neighboring cities.
4. Most important those possessing Bombay blood group should reserve their blood in specific blood bank from time to time which can be used for emergencies.
5. Few leading Hospital like King Edward Memorial Hospital (Contact- 022-2413 6051), Mumbai and few online blood donors database like www.lionsbloodline.com have registered donors who can be contacted during emergency.

Bijal Dalal
(T Y B Pharm)

Female Foeticide: A Brutal Act Involving Drugs

Female foeticide is an act involving intentional killing of female foetus in the mother's womb due to the preference for male babies and from the low value associated with the birth of females. This activity is as old as many cultures, and has likely accounted for millions of gender-selective deaths throughout history. It remains a critical concern in a number of "Third World" countries today, notably the two most populous countries, China and India. It is arguably the most brutal and destructive manifestation of the anti-female bias that pervades "patriarchal" societies. According to a recent report by the United Nations Children's Fund, India's population shows the deficiency of upto 50 million girls and women as a result of systematic gender discrimination in India. Due to the high cost involved in surgical abortion and its illegality in second and third trimester, newer non-invasive drugs, which are 85-97% effective, are widely used. This includes Mifepristone & Misoprostol, which in combination (Schedule H Drugs) induces abortion through the first 49 days of gestation.

Mechanism

Mifepristone blocks the hormone progesterone, which is needed to sustain pregnancy. This results in changes in the uterine lining and detachment of the embryo, softening and opening of the cervix, increased uterine sensitivity to prostaglandin. Misoprostol, a prostaglandin E1 analogue, causes the uterus to contract and thus causes expulsion of embryo. These drugs are contraindicated in presence of an intrauterine device, ectopic pregnancy, chronic adrenal failure, long term corticosteroid therapy. MTP kit, MTProst®, Nectrapil®, T-Pill+Miso are some marketed products that are sold over the counter without prescription.

To overpower this brutal act, government regulations prohibiting the use of prenatal sex identification techniques for nonmedical purposes are strictly enforced. Strict norms on production of such drugs are superimposed as a result of which many companies have decreased its production. Thereby the sale of these abortion drugs has been regularised. The principle of equality between men and women should be more widely promoted through the mass media to change the attitude of preference for a male heir. Last but not the least, increasing awareness can be promoted only through focus on effective public education.

Dinesh M Choudhary
(T Y B Pharm)

Nosocomial Infections - Pneumonia: A Case Study

In every nation, health care systems are one of the few sectors where a very high working efficiency of all medical and paramedical professionals is expected. Our nation with a vast population, financial inabilities, improper infrastructure and lack of hygiene lags behind significantly in the health care scenario. Following is a case which focuses how a small private hospital fails to provide appropriate medical care.

Patient details and History:

A 42 year old female, previous history of childhood asthma, operated upon thrice during a span of 23 years (Three caesarean sections, Hysterectomy, Oophoerctomy (surgical removal ovaries))

Initial Symptom before 1st hospitalisation: Shooting pain in the lower back, Throat itching, Fever, weakness, burning sensation in the urine)

Patient was hospitalised and advised to be kept under supervision for one night and check for condition next morning.

Initial Treatment: Metronidazole, Pheniramine, Ciprofloxacin, Hydrocortisone, Pantaprazole, ondansetron, Paracetamol, Ranitidine.

Second day treatment: Piperacillin/ Tazobactum, Artesunate, Ceftriaxone, Paracetamol injection, Amikacin Sulphate, Ibuprofen and Rantidine.
Patient did not respond to treatment for the 1st three days. By the third day, extreme chills, high fever, problem in breathing and inability to swallow food was reported. Doctors were unable to alleviate symptoms, and there was no change in line of treatment. Infection of the urinary tract did not decrease but instead flared up. A family decision was taken to shift the patient to another renowned corporate private hospital.

The initial patient admission report read as follows:
Diagnosis: Pyelonephritis with LTRI

Case history: Patient came with complaints of fever with chills, burning micturition, cough with expectoration and breathlessness since 4-5 days. Admitted to a private nursing home and diagnosed as UTI with renal calculi and possible septicemica. History of heamturia. Patient referred for further management. Past history - bilateral renal stones.
Patient was admitted and retained into Intensive Care Unit for 5 days. Catheter was passed through subclavian and patient is put on electrolytes for stabilisation. Doctor confirmed pooling of water in the lungs, pneumonia, declares it as a hospital acquired infection, septicaemia.

Treatment given in the ICU: Clarithromycin, Paracetamol-lignocaine, Frusemide, Salbutamol sulphate + Ipratropium Bromide, Ondansetron, Piperacilin + Tazobactam, Esomeprazole, Levofloxacin, Meropenem.

A very rigorous schedule for medication, doctor visits and hygiene was followed which lead to positive response from the patient. After 5 days patient was shifted to a separate ward and was discharged after 11 days when her condition was stable.

Course in the ward: Patient transferred here from private nursing home in v/o breathlessness/ desaturation. She was admitted in ICU and found to have pyelonephiritis and ITRI. She was managed conservatively in the ICU. Chest physician opinion was taken and patient responded well to the treatment.
Follow up therapy: Clarithromycin- 5days, Esomeprazole- 5days, Nitrofurantoin- 10days, Ambroxol syrup. Follow up with physician after 1 week with CBC/ ESR / Urine report.

This is one case out of hundreds which happen on a regular basis because of lack of care or the hospital cleanliness and administration. The total cost of two hospitalisations came up to Rs. 2 lakh which could have been considerably lower if the initial treatment and hospitalisation was safe and effective.

Mustafa Mithaiwala
(Final Y B Pharm)

Respiratory Distress Syndrome

Respiratory distress syndrome (RDS) is a breathing disorder affecting the newborns, more common in premature infants.
Pulmonary surfactant coats the inside of the lungs and facililtates breathing.
It might be an early phase of broncho-pulmonary dysplasia (BPD) which is another breathing disorder affecting premature babies. Some of the infants recover from RDS without suffering from BPD. Less developed or more damaged lungs are seen in infants with BPD than the infants who recover.

Infants who survive RDS may need extra medical care once home. However serious complications such as asthma , BPD, chronic breathing problem, blindness and brain damage could arise.

SIGNS AND SYMPTOMS of RDS

They include:
1. Rapid shallow breathing
2. Flaring of the nostrils
3. Grunting sounds
4. Apnea (pauses in breathing that last for a few seconds)
5. Depending upon the severity lung complications, blood complications and other severe complications such as blindness and eye problem may arise.

In some cases mental retardation or cerebral palsy occurs due to the bleeding developed in the brain which does interfere in the normal mental development of infants.

CAUSES

Lack of surfactant in the lungs is the major cause of RDS. Without enough of surfactant the lungs will collapse when the infant exhales, making it harder for the infant to breathe. As a result of which the infant might not be able to get enough oxygen to support the body's organs.

Risk Factors

- Excessive maternal blood loss at the time of delivery.
- Premature delivery.
- Infection

Diagnosis

The doctors usually recognize and begin treating the disorder as soon as babies are born. They conduct several tests to rule out any other conditions that could be causing breathing problems. These tests include :

- Chest x ray: It helps in the detection of signs of RDS in infants and other problems such as collapsed lungs, which may require urgent treatment.
- Echocardiography: Echo is used to rule out the heart defects.
- Blood tests: To check whether the infant has sufficient oxygen in his/her blood and also to find out whether any kind of infection is the culprit behind the infant's breathing problems.

Treatment

- Surfactant replacement therapy
- Oxygen therapy
- Breathing support

Nowadays more and more infants receive breathing support from NCPAP (Nasal continuous positive airway pressure). These machines help the infants to breathe better. It pushes air into the baby's lungs through prongs placed in the infants nostrils.
Medicines such as antibiotics are given to control infections.

Treatment in the NICU (Neonatal intensive care unit) includes:
• Using a radiant warmer or incubator so as to keep the infants warm and reduce the risk of infection.
• Ongoing monitoring of heart rate, temperature, breathing, and blood pressure through sensors taped to the babies bodies.

Prevention of malnutrition and promotion of growth by giving I.V. fluids and nutrients through needles or tubes inserted into the infant's veins.

Anagha Sonawane
(T Y B Pharm)

Organ Donations - Hurdles in a noble deed

Most people breathe their last everyday because of non-functioning of vital organs. Organ donations come to rescue of such people. It can help to save 8 lives by donation of organs like heart, lungs, kidneys, pancreas, liver, stomach, small bowel and enhance the lives of 50 people by tissue donations like cornea, bone, heart valves, skin, tendons that help rebuilt joints.

As per the statics of DNA newspaper in 2011, around 40,000 people in Maharashtra are awaiting kidney transplant and as per the National Association for the Blind (NAB), around 1, 00,000 people in India are awaiting eye transplant. So let's take a look at some factors why in a country with a population over 1.22 billion the rate of organ donation rate is so low.

Awareness: As per WHO, 1.3 million people die due to road accidents every year. There are possibilities of brain death among such cases. Brain death is an irreversible end of all brain activity where the brain swells and obstructs its own blood flow. Without blood flow, all brain tissues die. Artificial support system may maintain functions such as heartbeats and breathing but for few days, not permanently. It is a common state in which organs can be retrieved. But there are very few people who are aware about it. Thus creating awareness is the biggest hurdle to surpass. Any person who has already signed for organ donation should always carry the card given to them proving them as a donor, thus needy in cases of accidental death.

Ethical aspects: While the patient has been declared dead, there is still blood flow to the body and the person looks normal enough breathing with life. It's important to understand the family's condition who has suffered such an emotional loss due to death of a loved one. Donating organs could breathe a new lease of life to patients in need of organ donations. As per the medical guidelines the family should be requested for organs, but not forced.

Superstitious beliefs: Another major hurdle in India is the superstition attached to death and reincarnation in India. Many people believe in afterlife and feel that organ donation could lead to the body not being 'whole'. The only way to counter this is to raise the level of awareness about organ donation. It's important to note that world's major religions consider organ donation to be deeply altruistic gesture.

Other remedial steps: Following the Spanish or Singaporean law of compulsorily recovering the organs of all

patients who had not even opted for it when they were alive. However this initiative may seen too radical in India. If people are made aware about the potential of imparting lives to such a great number and if each and every one of us pledges to donate our organs, the transplant scenario will change completely.

Bhavini Panchal
(T Y B Pharm)

Indian Pharmaceutical Market: A Contrasting Visual

Pharmaceutical Industry in India is a very vast and diversified sector with an annual revenue generation of more than $100 billion, and with a potential of much more as the years proceed, with new medicines coming in the market every year maybe every month. It is an industry which was not considered a significant industry initially in the 1900s but lately has gained great mileage and importance due to the advent of many new ailments, increased awareness, changes in lifestyle, increased population, and a range of other factors. The Indian Pharmaceutical industry is expected to touch about $600 billion till 2020 along with the emergence of new technology, better healthcare systems, improved medical facilities and services, influx of more MNC's on the Indian markets etc. The previous two decades belonged to the IT industry, but the next forthcoming decades are those for the medical professionals. The medical professional along with the important tool of technology can significantly contribute to the profession by providing ground-breaking discoveries in the field of diagnosis and drug development.

Even though the future looks quite promising for pharmaceutical growth in India from the above glowing picture, there is also a deep darker side to it that was and is prevalent even today. The point I am coming to is that although Indian pharmaceutical market is growing at an exponential rate, countless people still die in various parts of our country and this is not only restricted to the rural areas but also to the urban metropolitan areas. There are various reasons to this, the most common being the financial disparity, lack of awareness, orthodox mindset, and the most crucial being malpractice in the profession. A country like India is affected more because of these issues due to the high illiteracy rate and ignorance. This makes the population more vulnerable and it is taken advantage of by the healthcare professionals and the industry as a whole.

Apart from this the latest trend is an increasing selling and marketing of counterfeit medicines, which the patient being unaware of takes it because the doctor has prescribed him. The counterfeit medicine market is altogether a different industry that flourishes in every country but more so in India. The state of Gujarat according to the recent statistics is the hub of counterfeit medicines especially when it comes to over the counter (OTC) drugs.

The entire scenario can be changed by stringent norms and regulations by the government. It may help curb pharmaceutical malpractice. Also on the other hand the government needs to help the pharmaceutical firms to help get access to the interior part of the nation, where illiteracy is maximum so as to provide awareness and efficacious treatment. Pricing of medicines has a key role to play especially in India where there is a large chunk of population which is poor; the more the price of medicines by the established multinational firms, the more is the chance of generics entering into the market and the more is the risk of spurious and counterfeit medicines surfacing in the market.

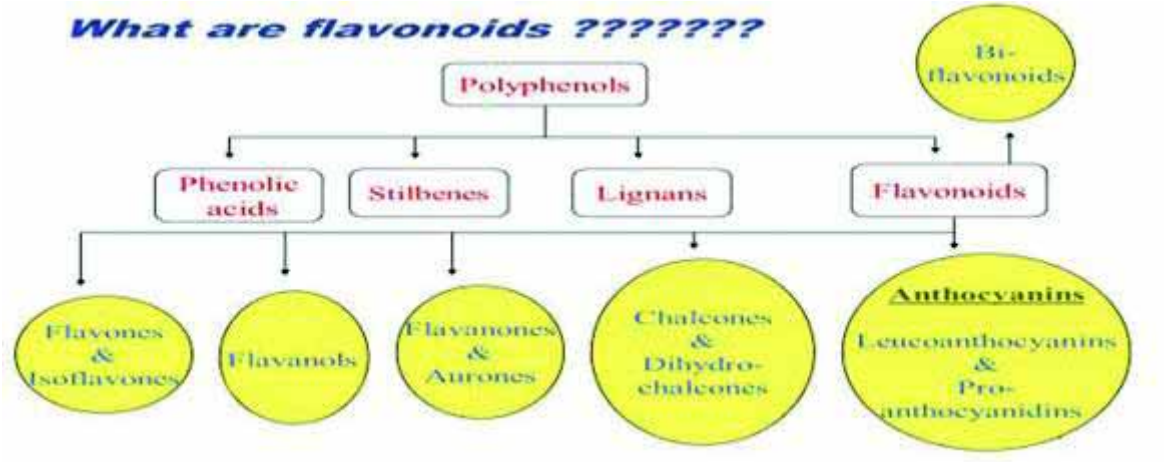
As a healthcare professional, we need to realize that, malpractice in our profession does not cost the patient their money but the patient pays through his life and all this happens just for a small extra cost. There is a very fine line between we being professional or unprofessional in our work and it is upon the individual to decide on which side of the line he/she would prefer to be.

Abhishek Nair
(T Y B PHARM)

Anthocyanins - Nature's Allure

Introduction

In an endeavor to identify the active health-promoting ingredients, many researchers have focused on the properties of the flavonoids, a large class of phenolic compounds that is abundant in such foods. Anthocyanins which are prominent among flavonoids form an important group of water soluble pigments abundant among most species in the plant kingdom. Being accumulated in cell vacuoles they are largely responsible for diverse pigmentation resulting in orange, red, purple and blue colors of many fruits, vegetables, grains, flowers and other plants. Anthocyanin pigments are important to food quality because of their contribution to impart vibrant hue and appearance to the product. The consumption of anthocyanins has been linked as protective agents because of their strong antioxidant properties. Dietary intake may play a significant role in preventing lifestyle-related diseases such as cancer, diabetes, and cardiovascular and neurological diseases.



- Anthocyanins belong to parent class of molecules called flavonoids.
- They are water-soluble vacuolar pigments.
- Derivatives of anthocyanidins- their sugarfree counterparts (aglycone portion).
- Responsible for much of the red, blue, and purple colors of fruits, vegetables, grains, flowers, and herbs.
- Synthesized via the phenylpropanoid system.
- They are the most oxidized flavonoids with the C ring fully unsaturated and a hydroxyl at position 3.

Properties & Functionality In Plants

1. Anthocyanins and stress responses.
2. Free radical scavenging.
3. Defensive role in plants.
4. Visual communication in animals
5. Colour.
6. Photo protection and Protection against ultraviolet radiation.

Health Promoting Properties

- Vision Improvement.
- Anti- Diabetic Activity as Insulin Secretagogue.
- Anti-inflammatory & Anti-Oxidant Activity.
- Anti-cancer Activity.
- Reduction in CHD.

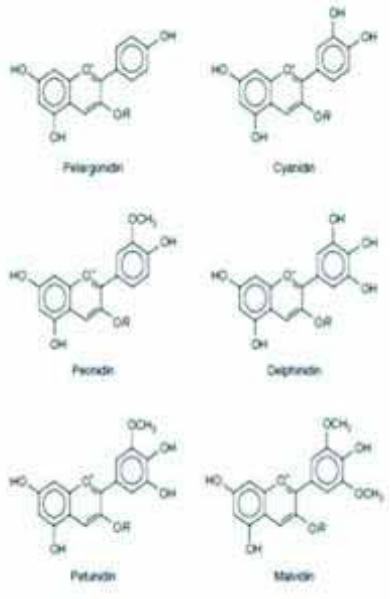


Figure 1: common anthocyanidins

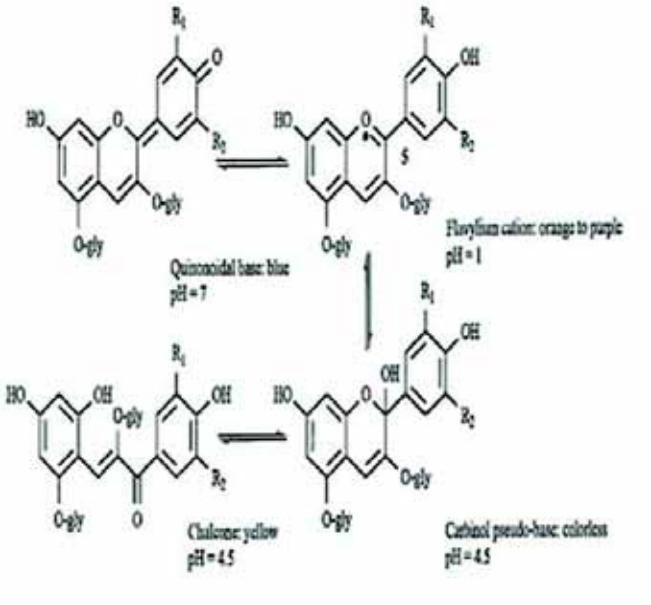


Figure 2: Anthocyanin transformations

Conclusion

Getting your fill of anthocyanin-rich fruits and vegetables may help boost your overall health by offering up an array of nutrients. This phytochemical class is a growing segment in the nutraceutical market due to its multifaceted role in human health maintenance. So stay healthy by taking your daily dose of colours.

Monil Karia
(S Y M Pharm)

Indian Pharmaceutical Congress

Managing side effects of the Drug therapy - the Hidden Cost

Arthritis is inflammation of one or more joints with the breakdown of cartilage. The goal of treatment is to reduce pain, improve function, and prevent further joint damage. The underlying cause cannot usually be cured. Non-steroidal anti-inflammatory drugs (NSAIDs) are efficacious in the treatment of arthritis. The side-effects, particularly gastrointestinal toxicity, are some of the challenges of therapy with NSAIDS.

The major drawback of this therapy is NSAIDs induced gastrointestinal toxicity. In addition to the cost of therapy, patients incur additional costs for the prophylaxis and treatment of these side effects. By a detailed study of patient history, the therapy can be modified to prevent these side-effects. The actual expenditure of treating arthritis also includes the medical costs of associated NSAID-induced gastrointestinal side-effects, requirements for daily care, assistive devices and home modifications. A survey of 100 arthritis patient was conducted in order to find out the cost involved in treatment of arthritis. The average approximate cost for drug therapy of arthritis treatment was found to be Rs 8000 per patient per annum. The allied costs including adverse drug reaction treatment costs, physician charges, hospitalization charges as well as transportation costs constituted to approximately 50% of the total cost of therapy. This study aims at finding various options for safer therapies and appropriate patient risk management to potentially reduce NSAID-related health care resource use and improve the quality of life for the patients.

Objective

The objective of this study was to:-

1) Analyze the drug therapy of arthritis patients with respect to pharmacoeconomics and determine cost effective care.
2) Determine the additional cost incurred on the therapy due to side effects of NSAIDs.
3) Determine the economic burden due to arthritis therapy.

Experimental Methods

A survey of 100 arthritis patient was conducted in a public hospital in order to determine the cost involved in treatment of arthritis. The questions in the survey were about the type of arthritis, blood test results, medicines prescribed, side effects, any recommended change in therapy or lifestyle, plans of a surgery, costs incurred due to therapy vs. the average annual income.

The patients were classified on the following basis:-Type of arthritis, people having side effects, people benefiting from the treatment, people taking drugs other than NSAIDs.

The cost of the therapy was determined and the economic burden was estimated by comparing the cost of the therapy and average annual income. The extra cost incurred for prophylaxis and treatment of side effects was also calculated.

Patients were asked for history of any previous G.I toxicity in order to explore the possibility of using COX-II inhibitors.

Results And Discussion

A detailed study of drugs effective in the treatment of arthritis was performed along with economics and their toxicity parameters. This revealed the following things:-

1) 60% of the patients reported G.I side effects with the use of NSAIDs.

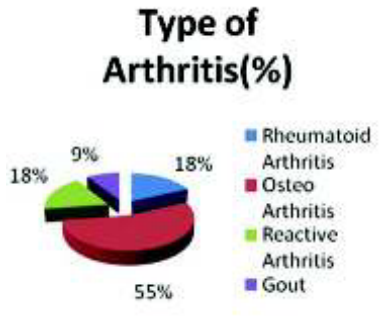
2) Dyspeptic symptoms are reduced by 15% and clinically significant ulcer complications are reduced by 50% on use of Cox-II inhibitors

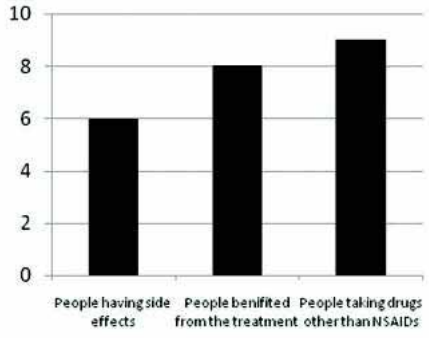
3) NSAIDs are inexpensive compared to other drugs used for the treatment of arthritis. However the cost of treating G.I side effects needs to be considered when making an overall assessment.

While making a clinical decision following things should be considered

- Patients with no G.I bleeding history – NSAIDs can be prescribed
- Patients with G.I bleeding history – Cox-II inhibitors can be prescribed. In this case use of NSAIDs should be avoided as it can lead to G.I bleeding.
- Decision to use Cox-II inhibitors should be made with the awareness of the effect of the added risk for cardiovascular events on cost effectiveness.

The data collected from the survey is as follows





Conclusion

When estimating cost of therapy, the cost of treating the side effects of the drug therapy should be taken into account. Safer therapies and appropriate patient risk management may potentially reduce NSAID-related health care costs improving the patient's quality of life and optimizing therapy.

Rahul Lad
(Final Y B Pharm)

Dietary Supplements - Perceived Benefits Vs Cost Effectiveness

Introduction

Dietary supplements include a wide variety of substances such as vitamins, minerals, tonics, herbal extracts, amino acids required in milligram to microgram quantities which are added to complete a diet or to make up for a dietary deficiency.

Objective

Dietary supplements have gained popularity in recent times due to their wide demand as well branding and marketing.

The aim is to study the economic effectiveness of dietary supplements and to check if the consumers are influenced by the advertisements and publicity of these supplements.

Experimental Methods

Designing of the survey: An online survey was designed with the help of Google docs® which was circulated online in Mumbai via emails, social networking platforms like Facebook®, Blackberry messenger® and Whatsapp messenger®. The survey consisted of 21 simple questions which enquired the usage, effectiveness and the economic feasibility of dietary supplements. Some questions were made mandatory and multiple answer selection was allowed in some question.

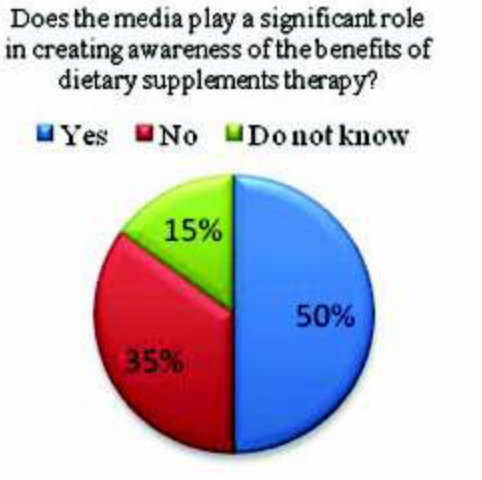
Analysis of the survey

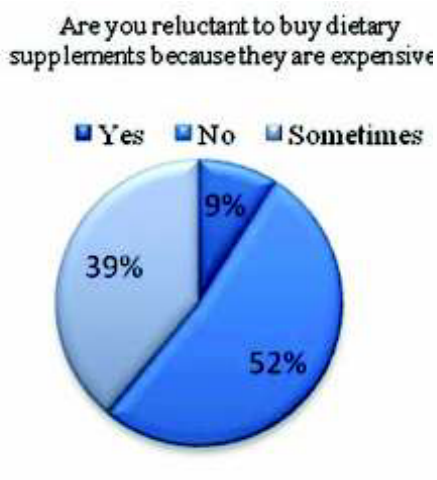
The survey (ongoing) consisted of 500 people of the age brackets under 21 years, 21-35, 36-50, 51-60 and above 60. The responses recorded were available in ready to use format from Google docs. Theoretical information and values: The details of recommended daily values(Daily Value: DV is developed by the USFDA to help consumers determine the level of various nutrients in standard serving of food in relation to approximate requirement for it) of various vitamins and minerals were obtained from the National Institute of Health science, United States. Sources, Potential interactions, complications of these dietary supplements were converted into tabular format for comparison and correlation. Some of the available branded products were also analysed theoretically for their prices and contents.

Evaluation of the survey

The bar graphs, pie charts obtained from the survey were then correlated to the objective of the study to draw out reasonable inferences and conclusions.

Results and discussion: The following pie charts and bar graphs based on the survey conducted help to interpret the results that follow.





A) Pharmacoeconomic Aspects

- 61% found the dietary supplements to be value-for-money.
- 53% found them to be inexpensive, 37% found them to be expensive sometimes.
- 82% people believe that branding increases the product prices.
- 60% people said that celebrity endorsements are futile.
- 51% said that the media does not play a significant role in creating awareness about the benefits of dietary supplements.
- The resources reserved for marketing and branding of these products prove to be futile due to the dissatisfaction of

Mineral/Vitamin	Per day intake (DV) For adults (above 18)	Supplements Available	Contra-Indications/ Drug-dietary Supplement interaction
Calcium	1000-1200mg	Calcium Sandoz, Gemcal	Antacids containing aluminium, Ca-channel blockers, Digitalis glycosides, Diuretics, Phenytoin,
Folic acid	400-600µg	Fefol- Z, Pevesca Plus	Anti-convulsants, Diuretics, Methotrexate (rheumatoid arthritis), Metformin (typeII diabetes), barbiturates
Non-haem iron	8-18mg		~High load is risky as it can stimulate free radical formation
Zinc	8-11 mg		Levofloxacin, doxycycline.
Magnesium	310-420mg		Chlorthiazide, Gentamicin, Cisplatin
Vitamin B3 (Niacin)	14-16mg		Atenolol, Atorvastatin, Bupropanol.
Vitamin B6 (pyridoxine)	1.3 to 1.7mg	Pevesca Plus	Sulfasalazine, levodopa.
Vitamin B12 (Cyanocobalamin, Mecobalamin)	6µg	Bplex forte, Pevesca Plus	Chloramphicaol, omeprazole, lanseprazole.
Vitamin C	75-90 mg	Celine	Aluminium Hydroxide, magnesium carbonate
Vitamin A			Tetracycline antibiotics, Warfarin
Vitamin D		Calciferol satchets	Mefruside, indapamide
Vitamin E	15mg 22.4i.u.		Warfarin,DDI: Anti-coagulant, Anti-platelet, Alters Effectiveness Of cancer therapy.

the customers with respect to the commercial claims. Moreover, companies could utilise these funds effectively for research purposes and in other developmental sectors.

The figure below illustrates the various daily recommended values and possible potential interactions of other drugs with dietary supplements.

B) Awareness, Usage & Effectiveness

Consumers who were prescribed a planned dietary supplement regime by a health care professional (which they followed diligently) reaped maximum benefits. 29% of the target population highly benefitted from self-prescription and 24% found the supplements to be slightly helpful after self-prescription. It is essential to emphasise the necessity to avoid such self-prescription since almost every supplement has potential interactions with allopathic drugs which the common man is unaware of.

Conclusion

Most of the populace (44%) were highly benefited from regular consumption of dietary supplements. Since the impact of advertisements was negligible and using supplements contributes to their daily expenditure, it is essential to optimize the prices and use of the healthcare products with the help of pharmacoeconomics. Conscious efforts should be made to educate the consumers about the effects and adverse effects of supplements.

Avani Gosalia
Mustafa Mithaiwala
Rakhi Modak
(Final Y B Pharm)

Avishkar 2013

Isolation and Identification of Flavonoid "Quercetin" from *Tridax procumbens (Linn.)*

Tridax procumbens (Linn.) is an important medicinal plant belonging to family Asteraceae. Flavonoid "Quercetin" was isolated from whole plant. Dried as well as fresh samples were reflux with 2M HCl and then extracted with Diethyl ether and subjected to TLC. The Rf value of isolated quercetin and standard quercetin was calculated. The purified material was subjected to its IR spectra, HPLC and identified as "quercetin". This study also has practical importance because quercetin is an important ingredient of *Tridax procumbens* and it has many uses such as cancer, diabetes, inflammation, antiviral etc.

Guided by Ms. Nikita Dhruv
Yashwant Malode
(S Y M Pharm)

Evaluation of Indian Medicinal Plants and Formulation with Antispasmodic activity

Abdominal pain, flatulence and colicky pain are the common symptoms associated with functional gastrointestinal disorders. Anti-spasmodics are used to relieve spasms of the stomach, intestine , and bladder however the anticholinergic side effects often limit their long term use. The purpose of this study was to assess Indian medicinal plants for treating spasms as there is need to develop safer antispasmodics without the limitations of conventional drugs.

The present study involved initial screening of plants for in-vitro antispasmogenic activity on ileum of hen (spasmogen: Ach) and guinea pig (spasmogen: histamine). The effects of crude methanolic and aqueous extracts of fifteen plants and two marketed preparation were studied in a dose dependent manner. The plants were selected on basis of their traditional claims whereas the marketed preparations were validated for their marketed claims.

The extracts which showed antispasmogenic activity were chosen for preparing a formulation to be prepared and used at home.

In-vitro results of aqueous extracts of *Zingiber officinale*, *Syzygium samarangense* & *Garcinia indica* showed 51.39, 41.67 & 50.62 % inhibition respectively against histamine induced contractions and 29.54, 18.75, 40.56 % inhibition respectively against Ach induced contractions. The marketed preparations Bi-quinol and Carminol displayed 58.69 and 96.67 % antispasmodic activity. All experiments & results were in triplicate and performed thrice for good statistical analysis.

The results obtained, partly substantiate the traditional use of these herbs for treating spasms, acute spasmodic & colicky pain. Further study is being pursued to evaluate and validate the formulation.

Guided by: Dr. (Mrs.) Vaishali Dixit
Kiran Ghanekar
(S Y M Pharm)

RX 2013

Oncolytic Virotherapy: A Solution To Metastatic Cancer

Oncolytic Virotherapy is an emerging form of treatment for metastatic cancers.
It is a form of treatment which is under extensive research all round the globe and is a very prospective topic which is catching the eye of various researchers in the medical field.
It uses certain specific viruses called oncolytic viruses to tackle the issue of metastasis.

Research Studies

A great deal of research along with human clinical trials is being carried out for determining the feasibility and efficacy of the treatment.
Many governmental and private medical institutions have shown interest in it and a lot of focus and attention is being given to it especially by the oncologists.
Institutions such as the Ottawa Hospital Research Institute, Canada; Jennerex Biotherapeutics ,San Francisco,USA have conducted a great in depth research on this subject along with many others.

Scope of Treatment

Metastatic cancer is the last stage of cancer in which the malignant and proliferating tumor cells spread from the primary organ where they originated to other parts of the body and thus making the anti-cancer treatment all the more difficult to carry out.
Also more than 50% of the cancer cases which are detected are in this late metastatic stage thus increasing the mortality rate.
This treatment shows the promise and the plausibility of tackling this devastating form of cancer.
This therapy specifically involves a class of virus termed as picornavirus which has selective affinity for cancer cells. But like any other ground-breaking discovery there are certain hurdles that need to be overcome to make this treatment option a reality.
The above treatment option is currently under clinical trial and is usually combined with chemotherapy for optimum results.

Result and Review

Using Oncolytic Virotherapy alongwith certain other standard and non-standard treatment techniques it is possible to provide a suitable cure for metastatic cancer and to reduce the mortality rate of cancer and enhance the longevity of life of cancer patients.
From this aforementioned piece of research evidence we intend to provide a possible solution to implement the above therapy by giving it a substantial backing and a scope for it to become a commercial success.
We would like to contribute to the ongoing research in this presentation work by applying whatever knowledge we have gained over the preceding years by presenting our solution to this long-standing problem of treating metastatic cancer.

Abhishek Nair, Dinesh Choudhary, Soumya Chikermane
(T Y B Pharm)

Know More About Your Favourite Drink : Tea

Purpose

The main purpose is to review the current literature on the reactions of the tea with various medicated preparations. Green tea has been lauded with various beneficial health effects and more recently its biological activities have been investigated.

The main constituent which is responsible for the health effect s of the green tea are polyphenols, of which the main one is epigallocatechin-3-gallate (EGCG); and methylxanthine like caffeine; and kaempferol.

Experiment

Various advertisement for marketed green tea has gained attention of consumers. Green tea is used by the people for weight loss treatment and health remedies. People consume green tea products without physician guidance and without considering the concomitant drug interactions and medical history. .

Observations

The survey showed that 70% of population consumed green tea. Out of which 80% of the green tea consumers consumes it for the weight loss treatment. Most of the population consumed tea, with various medications taken just before or after consumption of tea.

Result

The possible interactions of green tea with various drugs were like; increased hepatotoxicity due to consumption of tea with paracetamol or diclofenac; toxic hepatitis due to tea with progesterone. Also due to the caffeine content in the tea it shows a modest increase in the blood pressure, which may be detrimental to treatment of hypertension and hence reduced effect of antihypertensives.

Conclusion

Our analysis of general survey suggests a casual association between green tea and various drugs. The hepatotoxicity caused is probably due to epigallocatechin-3-gallate (EGCG) under particular condition related to patient metabolism. It appears necessary to provide detailed information to users and to improve active surveillance of these products. Hence we conclude that green tea is safe to consume under physician guidance to minimize the possible drug interactions.

Mayuri Avhad (Final Y B Pharm)
Pranita Dharmadhikari (Final Y B Pharm)
Pravin Bijja (T Y B Pharm)

Self-medication of Antibiotics

Self-medication is defined as obtaining and consuming medication without professional supervision, which includes acquiring drugs without a prescription, purchasing drugs by resubmitting or reutilizing an old prescription, taking medicines on advice of relatives or friends and consuming left-over medicines already available at home.

A total of 350 subjects belonging to different age groups were surveyed, based on a questionnaire that was devised for analyzing self medication of antibiotics. Out of 350, 300 resorted to self-medication of antibiotics, of which 178 suffered from minor adverse reactions like abdominal cramps and rashes. Also 149 terminated the antibiotic course once the symptoms subsided. Majority of the subjects were unaware of antibiotic resistance due to non-conformance

and considered self-medication an acceptable practice.

The study thus proved that a strong awareness needs to be created amongst consumers about the adverse effects of self-medication and strict regulations must be followed during the retail sale of drugs.

Afreen Khan (T Y B Pharm)
Shweta Sabbani (T Y B Pharm)
Sadaf Faizan (T Y B Pharm)

Age Related Macular Degeneration

Age-related macular degeneration (AMD) is an acquired degeneration of the retina that causes significant central visual impairment through a combination of nonneovascular retinal pigment epithelium abnormalities and neovascular derangement which begins with characteristic yellow deposits (drusen) in the macula.AMD is majorly attributed to old age and genetic factors although environment, nutritional deficiency also play a part in the degeneration of the retina. Advanced disease may also involve focal areas of retinal pigment epithelium loss, sub retinal hemorrhage or serous fluid, as well as sub retinal fibrosis. Large and soft drusen are related to elevated cholesterol deposits and may respond to cholesterol-lowering agents.

The aim of the project was to conduct a survey with patients and doctors of an eye hospital to understand the disease progression and to identify ocular, personal, and environmental risk characteristics for AMD. The survey also focused on accurate diagnosis this disease and developing a decision making strategy for management of patients at risk for severe vision loss from AMD. Attempt was also made to provide information and resources for appropriate patient education in the area of vision rehabilitation through distributed pamphlets.

It is a major cause of blindness and visual impairment in older adults (>50 years). Thus it is important to create awareness about this disorder and to diagnoses the disease in time with appropriate examination and treatment procedures to help reduce severe vision loss and help the geriatrics group. Improved patient understanding of AMD will promote compliance and in some cases may help preserve useful vision.

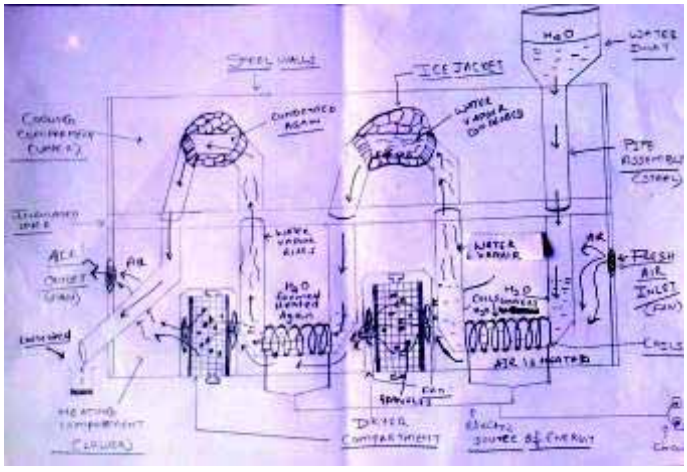
Misba Zariwala
(T Y B Pharm)

Novel M&T Combo-1 model (distillator and granule dryer)

Aim

An attempt was made here to make a novel machine which not only carries out distillation process efficiently but also works as a dryer. The combination of these equipments avoids the drawbacks given by the conventional models such as Drum dryer and Spray dryer. The equipment produces water for injection (W.F.I) by double distillation and utilizes the thermal energy generated to dry the granules or the coated tablets.

Design: It has 2 compartments with an assembly of pipes running through them. Drying is carried out in the lower compartment. When water flows through pipes, it



is double distilled and the dryer utilizes the heat produced inside for drying the granules.

Results

This novel equipment produces W.F.I according to the specified standards as checked by various tests. It utilizes the thermal energy produced during distillation to dry the granules or the tablets.

Conclusion: High amount of energy is required for drying the granules. Careful control over the temperature, film thickness, and vacuum is needed in Drum drying process. Spray dryer is very bulky and requires an atomizer to create fine droplets which tends to get clogged. Microwave driers have small batch size and can cause damage to organs of the operator. All these drawbacks are overcome by M&T COMBO model. It also decreases the cost of production considerably. This M&T COMBO equipment can offer a great aid to the pharmaceutical industry.

Mandar Valavalkar (Final Y B Pharm),
Tejas Phatak (T Y B Pharm)
Rohan Awate (T Y B Pharm)

EXERGY 2013
Business Plan

Executive Summary

Uniqueness of The Business Idea

We plan to open a healthcare service facilitating patients requiring long term therapy, senior citizens & pediatric care and people below poverty line. They would be benefitted by our healthcare service by an innovative and cost effective method. Our company would have tie ups with pharmaceutical companies, various NGOs, hospitals, physicians, chemist shops and blood banks for sourcing of facilities.

The company would also be registering patients. Case study of every patient will be maintained along with the prescription from an authorized doctor (mandatory in case of ordering the medicines).

Poverty is widespread, with the nation estimated to have one third of the world's poor. Malnutrition in children is not affected by food intake alone; it is also influenced by access to health services, quality of care for the child and pregnant mother as well as good hygiene practices.

Thus we will be generating profits and sharing them with needy people free of cost and assist them in all possible ways. For such people, the service would be rendered through tie ups with the NGOs who would help us to reach these people in a cost effective manner.

Understanding of Market and Its Analysis

This type of business model is not so widespread in India, therefore competition from other peers are expected to be less.

Marketing and Sales Strategy

1. Provision for free delivery on all medicines.

2. Advertising through internet, newspapers, magazines .Reminders to patients by SMS, phone calls and e-mails. Use of internet technology will be maximized for reducing the cost to the company.
3. People would get medicines on MRP, thus increasing our profit as buying medicines in bulk from pharma companies would cost less for the company.
4. Free health check- up camps for blood pressure and blood sugars would be provided quarterly to registered patients.

Management and Administrative Strategy

The company will be managed by a group of pharma graduates well equipped about the industry. Administration will be done using technological aids and software programs. While Marketing and HR will be self managed, financial management will be done through outsourced agency.

Technical Overview

Company will identify the prospective organization for tie-ups. Joint collaboration will be formed with such companies on a revenue sharing model. Patients will approach for services being offered and catered through appropriate collaborative ventures.

Finance Strategy

Finances would be managed by taking loan from the bank for initial capital requirements. The profits generated subsequently through operations will provide for the working capital.

Backup Strategy

Collaborations will be maintained with multiple companies providing similar facilities to ensure redundancy of business model.

Revenue And Profit Potential

Capital inflow would be from sale of medicine, service charges, advertisement of pharma companies and tie ups with organizations financing us for expanding their own business.

Exit Strategy

To contain losses, if downfall of the business happens then medicine inventories, and other fixed assets would be sold off at market price and repayment of any remaining debts could be done.

Somali Dey
Pragatee Gawande
Vrunda Mehta
(Final Y B Pharm)

Executive Summary of Knitos Online Library

Libraries have been and will always be an important part of the society. There are evidences of functional libraries way back in 1900BC and the first public library came into existence in the year 1598. Since then the need to achieve and share the collective knowledge has helped concept of libraries grow leaps and bounds. However, with emergence of new technologies for information sharing like Internet and electronic media, besides increased time pressure on individual and reduced funding by government, has resulted in decay of public library systems. Reading is a beneficial habit for children and adults alike. Our mission is to bring about a radical change in the traditional library business and

to provide services that are tailored to support ever-changing lifestyle. Our vision is to usher in the era of computers and make libraries go online.

They say that books are the quietest and most constant of friends. We want to provide our customers easy access to books without any hassles of going to the nearest store or library. Our customers can order and queue their choice of books online from the comforts of their home and the books will be delivered to them as per their conveniences.

Our specialties are:
- Speedy delivery of books at affordable rates.
- Deliveries done 3 times in a day as per needs.
- Value added services such as blogs for discussion, reviews and preview of cover page of books, announcement of recent releases.
- Free trial for a month provided without subscription charges.
- Frequent provision of deals and offers.
- Encouraging local talent by allowing uploading of short stories etc.
- Also providing platform to subscribers for discussion of recent news articles.
- Polls and comments taken for recent releases and review forwarded to authors and publishers.

The service will be initially targeted in the area of Thakur Village, Kandivali (East). It will be gradually expanded with time to nearby areas in Mumbai and also other cities. The reason for this choice is the opportunity present for this market in the area as well as a favorable customer community. The website will be created and updated regularly keeping up with the standards of internet.

An independent market research was carried out in the traditional libraries in the area and online. The survey was conducted in the targeted area. The survey consisted of various questions regarding the various aspects of a library-infrastructure, inventory, market and finance required. The observations of the survey are as follows:-
- The traditional format is not much profitable as the business needs a refresh. Internet services have been affecting the traditional services.
- Online libraries are present, but not widespread.
- The inventory consisted of books from various categories ranging from 4000-70000 depending on the target markets. About 2-5 copies of books were stocked.
- Libraries (online and traditional) have deposit and registration charges of about INR 500.
- Target demographics are generally kids, teens, youth and middle age.
- The libraries need to buy new stock or renew inventory every 2 days to every month.

Knitos online library will provide quality books at rates that are affordable to the middle class families living in Thakur Village, Kandivali (East). Our customers will be given extra attention and the books as soon as possible. Our top priority is that the customers spend time with books, their best friends and not travelling to and fro to lay hands on their favorite books. Enough copies and categories will be stocked to satiate the needs of the book lovers.
Online library business is noticed to have brought a change in the existing market. It is still a novel idea and has plenty of opportunity for newcomers.

Our targeted customers are the middle age and youth as well as teens and kids (through their parents) who are well versed with usage of the internet. The customers can easily make a list of books as per their needs. The books will be delivered at their doorstep as per their conveniences. The target market is initially small, so as to provide optimum services to satisfy our customers 100%. We want to increase our target market eventually by gradually learning the tricks of the trade.

The marketing strategy will be based on targeted advertisements, appealing to the customer's sense of value and interests. The advertising campaign will stress on the thought "Reading is to the mind what exercise is to the body". The advertisements will be printed in leading local newspapers as well as magazines. Also Print media such as brochures, pamphlets will be used. Promotional news will be sent to regular customers and personalized logo, signage & design will be used in all the brochures, receipts and correspondences. We also believe in word-of-mouth publicity and hence we will spread the word of our new services high and low.
The strategy will be based on inspiring customers to inculcate a regular reading habit. We will stress on the beneficial effects of reading that any reader gets. To facilitate that, we will provide books as per their tastes, at affordable rates and at their doorstep. "Happy Reading" will be our motto and we will encourage it. By keeping to these simple, yet effective, customer satisfaction services, we expect the customers to make KNITOS online library their exclusive source for books. We want to make long-lasting relations with our customers and wish to have a loyal customer base, as books will be always an important element of a person's life.
The Investment required for start-up of the business is INR 4, 50,900.00. The money will be elevated for project through loans or by investment from private investors.
The cost was arrived at by calculating the infrastructure set-up assumptions (INR 44,200), inventory setup assumptions (INR 3, 00,000), marketing, advertising and on-going expenses (INR 1, 01,200); a total of INR 4, 50,900 as investment.

The net income per year is expected to be [INR 23,400] for the first year and additional [INR 20000] more in the following years (due to increase in the target area and customers). The net present value of business was found to be [INR -44,839.56]. The terminal value of the business is expected to be [INR 533145.45] thereafter which the business is expected to be stable. The period for break-even point to be achieved is estimated to be in [year 6]. Year 8 cash on cash was expected to be [1.82]
The business will be expanded by flaring the size of the targeted location by progressively advertising in the nearby locations and then the city and so on. Also, CDs, DVDs of music as well as movies and also other merchandise will be sold online after the brand has made its mark in the market.
If the business does not prove to be a success, the inventory along with the domain charges of website can be sold and most of the cost incurred can be recovered. Around 3.5 lakhs INR assets can be recovered.

Sujatha Iyer(Final Y B Pharm)
Prachi Patil (Final Y B Pharm)

Executive summary of Mobile Fruit Juices Van

Jogging in the mist of fog and enjoying your favourite fruit juice is the dream of every jogger and we present you with a service and a product that will change the way people begin their day. We will be providing 'on the spot prepared juice'. This will be accommodated with our website. We are just giving the concept of mobile juice vans, a professional touch and introducing it at many places at the same time.

Service at a glance

We are going to introduce Mobile Fruit Juices Van named as Juicyboost which will be present outside the jogger's park and provide them with freshly squeezed herbal juices and healthy breakfast at very competitive rates. Along with that an easy 24*7 access to us through our website www.juicyboost.com will be available.

Key differentiators

1. Huge variety of Herbal Juices to select.
2. The breakfast and soup for the different age group available like kids (mostly on weekends), elderly, pregnant

women's is a new concept.
3. Medical consultant is available on the website (reply accepted in 7-8 hrs max)
4. Online order accepted and home delivery (for the same day delivery, call or mail at least before 2hrs)
5. Information about all herbal and organic juices on the website.

Location

Initially the vans will be located at only few places; namely New golden nest park, Jesal park, Veer savarkar Udyan, Rani laxmibai garden and National park .These are the area between bhayandar and borivali. The concept of mobile juice centre being new, people will at least try the juice at Juicyboost once and the service we provide them will force them to come again.

Present scenario

Market overview

An independent market research carried out has brought to notice the current state of herbal juices. The survey was conducted between bhayandar and borivali. The survey consisted of few different questions regarding the various aspects of herbal juices, their making, their benefits known, raw material cost. The observations of the survey are as follows:-

- Currently the people who are selling these juices in morning are either house wives or this is their means of part time income.
- The spread of benefits of different herbal juices is on a high rate and people wish to have it regularly.
- Due to rise in the cost of vegetables and fruit most of them get these on wholesale rate and then preserve it.

Competitors

• People who sell homemade juices near parks and gardens in the morning: These juices are available at minimal prices. Many of the morning walkers and joggers have relations of trust and friendship with them. Hence it would be very difficult to attract these target audience.
• Herbal juices manufactured and sold by the ayurvedic shop

Overcoming the threat

• Its unique feature is that it's a mobile juice centre. This kind of concept has not been introduced in India so far in the Indian market.
• We prepare juice in front of the customers itself. The customers can see how their juice has been prepared, what is added to the juice and how hygienic the juice is.
• We also offer various combinations of Vegetable Soup and Healthy Breakfast depending on age and health like diabetic patient, cholesterol patient, etc.

We don't keep vegetable and fruit in stock. It will be brought on day to day basis for maintaining the freshness.

Marketing strategy

• The marketing strategy will be based on targeted advertisements, appealing to the customer's sense of value. The advertising campaign will highlight the "one-stop for all health needs" aspect of the Juicyboost. The Marketing team will conduct awareness drives about certain diseases, free vaccinations, blood donation, diabetes checkup and other drives for the benefit of the locals.
• There are not many juice centres open in the early morning; and most of them are not located at close proximity. Therefore, we want to seize the opportunity and venture in this unique concept.
• Market penetration will be followed where we will initially set a low price so that we can penetrate the market quickly and deeply and win a large market share. This strategy is adopted because the market is highly price sensitive and low prices will help us keep out the competition. Hence following this strategy the prices of our herbal juices will be Rs. 10 and that of our soup and breakfast will be Rs. 20.
• This new concept will create hype amongst the customers and Juicyboost will automatically get publicity with the help of mouth-to-mouth publicity or word of mouth and thus the service we provide them will force them to come again.

IES Insight

Formulation And Evaluation of Losartan Potassium Sustained Release Floating Tablets

Losartan potassium is a potent antihypertensive drug which is a highly specific Angiotensin II Type/AT1receptor antagonist. It is readily absorbed from the gastro intestinal tract, having oral bioavailability 33% and plasma elimination half life of 1.5 to 2.5 hours. The present study is an attempt to increase therapeutic efficacy, reduce frequency of administration and improve patient compliance of Losartan potassium by developing sustained release tablets. It was formulated into gastroretentive floating tablets, employing a new floating polymer tamarind kernel gum and known polymers HPMC-K4M , HPMC-K15M and HPMCK100M. Even though there are several floating polymers, there is a continuous need to develop new floating polymer for better buoyancy and controlled release of drug. Isolated tamarind kernel gum is off white, free flowing and amorphous in nature. Preformulation studies were carried out to evaluate the parameters like powder flow properties, loss on drying, Drug-excipient compatibility and stress stability. All formulations showed acceptable IP specifications for weight variation, thickness, hardness and friability. The dissolution studies showed release of drug over a period of 16 hours . So it was concluded that tamarind kernel gum in combination with synthetic polymers could be used as floating and controlled release polymer in the formulation of gastroretentive formulations.

Guided by Dr (Mrs). Abha Doshi
Bhagyashri Chavan
Yashwant Malode
(S Y M Pharm)

Review on Self Microemulsifying Drug Delivery System: A Novel Approach For Hydrophobic Drugs

Abstract

Oral route has always been preferred route for formulators and has dominated over other routes of administrations. However this preferred route is limited to those drug molecules that are permeable across the gastric mucosa and are at least sparingly soluble. Unfortunately, approximately 40% of new chemical entities (NCEs) exhibit poor aqueous solubility and present a major challenge to the successful development and commercialization of new drug delivery system, because of their low bioavailability. Furthermore, oral delivery of numerous drugs is hindered due to their high hydrophobicity or lipophilicity. Lipophilic and less water-soluble therapeutic agents have decreased bioavailability, increased chance of food effect, incomplete release from the dosage form and a high inter- and intra-subject variability.

Self Micro-emulsifying Drug Delivery System (SMEDDS) is a novel approach to improve water solubility and bioavailability of drugs. SMEDDS are isotropic (one phase system) mixture of oil or modified oils, surfactants and co-surfactants, which form fine oil-in-water microemulsions when introduced into the aqueous phase of the GI tract under conditions of gentle agitation in vivo. SMEDDS is evaluated by various methods like visual assessment, droplet polarity and droplet size, dissolution test, charge of oil droplets, viscosity determination, in vitro diffusion study.

With further development of this technology, SMEDDS will continue to enable novel applications in drug delivery and solve problems associated with the oral delivery of poorly soluble drugs.

Table 4: Examples of Pharmaceutical Products formulated as Solid self emulsifying systems.

Conclusion

Thus SMEDDS are a promising approach to effectively tackle the problem of absorption and hence bioavailability of poorly soluble drugs.

Jesal Doshi(S Y M Pharm)
Vandana Wankhede(S Y M Pharm)

hERG Suppression- An Expedite Approach In Development Of Safer Cardiovascular Drugs

Abstract

Cardiac arrhythmias are major causes of morbidity and mortality, including sudden cardiac death. European Committee for Proprietary Medicinal Products has stated that "every new chemical entity intended for Phase I evaluation should be screened for potential effects on cardiac repolarization". The human ether-a-go-go-related gene (hERG) channel, a member of a family of voltage-gated potassium (K+) channels, plays a critical role in the repolarization of the cardiac action potential. The reduction of hERG channel activity as a result of adverse drug effects may cause QT interval prolongation and potentially lead to acquired long QT syndrome resulting in potentially fatal ventricular tachyarrhythmia called Torsade de Pointes. A number of drugs have been withdrawn from late stage clinical trials due to these harmful effects, therefore it is important to identify inhibitors early in drug discovery. Hence it is necessary to highlight the relevance of novel and more efficient ion channel screening technologies for safer drug development. The present article gives an overview on role of hERG & methodologies employed for assessing the degree of hERG inhibition so as to provide more efficient drugs with lesser cardiotoxic potential.

Introduction

- Ion channels are important targets of therapeutic agents.
- Potassium channels are one of the most diverse classes of cell membrane proteins.
- Third largest group of signaling molecule after protein kinase and G-protein-coupled receptors.
- Activity regulated by different voltage-gated ions (Na^+ & Ca^{2+}), neurotransmitters & K^+ ions.

What Is hERG?

- N-terminal region contains a Per–Arnt–Sim (PAS) domain, important role in deactivation of the channel.
- The C-terminal tail contains (CNBD)- function not well characterized.
- Voltage-gated K+ channels 7.1 (commonly known as Kv7.1 or KCNQ1) and Kv11.1 (commonly known as hERG and KCNH2) play important role in cardiac repolarization.
- Mainly expressed in heart, but are also expressed in many other tissues including the brain, kidney, liver, and lung.
- Ikr, encoded by Kv11.1 gene which is usually called hERG.

What Is Lqts?

- Can be drug- acquired or inherited alterations in IK channel.

- Class III antiarrhythmic agents, which mainly block the IKr channel currents. This is termed a class III antiarrhythmic effect.
- As IKr plays a key role in repolarization, inhibition of it causes prolongation of the QT interval on the ECG.
- This leads to life-threatening ventricular tachyarrhythmia, in particular Tdp (torsade de pointes).

Primary factors for successful accomplishment of heterologous expression of ion channels

1) Choice of the mammalian cell host- transient or stable.
2) Choice of the expression vector- viral vectors or plasmid vectors.
3) DNA delivery method- chemical or physical.

Other Significant applications-

- In colon carcinomas, hERG mRNA was a more sensitive and more specific indicator for malignancy than mRNA of CEA, CK19 & CK20.
- Direct blockade of the hERG potassium channel, is expected to produce antiproliferative and proapoptotic effects that diminish tumor growth and invasiveness.eg. Cisapride.

Monil Karia(S Y M Pharm)
Kiran Ghanekar(S Y M Pharm)

Pharma News

• GlaxoSmithKline (GSK) has announced the endpoint results of its pivotal phase III COMPARZ trial comparing renal cell carcinoma (aRCC) drugs pazopanib and sunitinib in 2012.

• Pfizer has launched a joint venture company with Zhejiang hisun pharmaceutical of china to develop off patent pharmaceuticals in China under the name of Hisun-Pfizer pharmaceuticals. The joint venture will focus on R & D, the production of branded generic medicines and the commercialization of existing medicines. Hisun owns a 51% stake with Pfizer holding the remainder.

• About 40% of the marketed drugs and 70% of active pharmaceutical ingredient (API) present in R & D pipeline of major pharmaceutical companies are poorly soluble in water. In this scenario MICROMACINAZIONE has developed an innovative jet mill technology platform intended for mechano-chemical activation of a poorly soluble API with appropriate careers like polymers or complexing agents. It works by promoting, high energy continuous co-grinding an extensive particle size reduction (upto nanocrystals) and stabilization of API within the carrier. The "activated compound "therefore would be easily filled into capsules, sachets or compressed into tablets.

• A powerful painkiller has been found in the toxic venom of the black mamba snake, scientists in France say, its venom, said to be as powerful as morphine but without most of the side-effects, is able to abolish pain through the inhibition of acid-sensing ion channels (ASICs). A new class of three-finger peptides, known as mambalgins, is not toxic in mice but show a potent analgesic effect that can be "as strong as morphine". Morphine is an opioid receptor and its rapid blockade of this receptor often produces withdrawal symptoms such as headaches, difficulty thinking and vomiting. Mambalgins tackle pain through a different route, which should produce few side-effects, researchers say.

• A recent study finds pre-diluted gray tattoo ink to be the cause of a *Mycobacterium chelonae* skin infection outbreak in Rochester, New York.
The study, which was published in the September 13, 2012 edition of the New England Journal of Medicine, investigates the cause of infections with *Mycobacterium chelonae*, bacteria that is sometimes found in tap water, in 19 patrons of the same tattoo artist at the same parlor. Researchers determined that a premixed gray ink, popularly used in portrait and photography tattoos, was the source of the infection. "Many of the patients saw thought their skin was just irritated and the issue would go away during the healing process. In actuality, they had an infection that needed to be treated with an antibiotic; it wasn't going to go away easily on its own."

• According to the National Digestive Diseases Information Clearinghouse (NDDIC), more than 2 million people in the United States have been diagnosed with celiac disease, a digestive disease in which individuals cannot tolerate gluten. Individuals with celiac disease are counseled to avoid a diet containing gluten, a protein that is found in wheat, barley, and rye. While information on the ingredients of food products has become increasingly available, recent reports have revealed that the use of some cosmetics, including products used on the lips and face, can result in unexpected exposure to gluten.

• Wal-Mart Stores, Inc. launched an effort to save diabetes patients in U.S a reliOn brand of diabetes products.
People with diabetes use meters and blood sugar test strips daily to test their blood sugar levels and determine when they need to take insulin.
"Many people with diabetes struggle to manage their disease due to its terrible financial burden," said John Agwunobi, M.D., president of Wal-Mart U.S. Health and Wellness. Wal-Mart Stores, Inc. will provide increased savings on a variety of items to help patients ease the cost of diabetes management. ReliOn items that will see reduced prices include gloves, lancets, syringes and more. Wal-Mart also offers ReliOn insulin products at the everyday low price of $24.88 per bottle.

Cerebrating METizans

Eureka!

• Finox Biotech, a biopharmaceutical company, has submitted the Marketing Authorization Application (MAA) for its biosimilar recombinant Follicle Stimulating Hormone (r-FSH) to the European Medicines Agency (EMA).
BEMFOLA is a new "biosimilar" medicine: an almost exact copy of the originator product that was produced using recombinant DNA technology. Both BEMFOLA and the reference product Gonal-f are formulations of the naturally occurring hormone FSH, which plays a key role in human reproduction. Finox Biotech has agreed with the US-FDA via a Special Protocol Assessment to conduct a pivotal phase III study (FIN3002) for registration of BEMFOLA (AFOLIA) in the USA.

• European Commission approves Novartis' Exjade for iron overload in patients with NTDT.
The European Commission has approved Novartis' Exjade (deferasirox) for the treatment of chronic iron overload requiring chelation therapy when deferoxamine therapy is contraindicated or inadequate in patients aged 10 years and older with non-transfusion-dependent Thalessemia(NTDT)syndrome.Exjade is the first oral treatment approved in the European Union (EU) specifically indicated for the treatment of chronic iron overload in patients with these types of thalassemia. Exjade is an oral iron chelation therapy indicated for the treatment of chronic iron overload due to frequent blood transfusions ,in patients with beta-thalassemia aged 6 .
It is also indicated for the treatment of chronic iron overload due to blood transfusions when deferoxamine therapy is contraindicated or inadequate in the following patient groups: patients with beta-thalassemia major with iron overload due to frequent blood transfusions (>=7 ml/kg/month of packed red blood cells) aged 2 to 5 years.

• Hope of a Malaria Vaccine
The recent report of successful clinical trials of a new vaccine for malaria, in this context, is certainly a great hope for the people of poor countries. The results of a phase III trial of the drug candidate, RTS,S, published in the New England Journal of Medicine, show that the malaria vaccine candidate provided significant protection against clinical and severe malaria with an acceptable safety and tolerability profile. The vaccine is being developed by GSK and the PATH Malaria Vaccine Initiative (MVI).

• Mayo Clinic researchers identify enzyme linked to prostate cancer.
"The molecule is a protease. Data suggests PRSS3 activity changes the environment around prostate cancer cells - perhaps by freeing them from surrounding tissue — to promote malignancy and invasiveness," says the study's senior investigator.
The protease has an active site that breaks down other proteins, and our inhibiting agent sticks to the site, shutting it down," Dr. Radisky says.

• Abbott launches dissolvable stents.
Abbott described the product as the "world's first drug eluting (drug coated) Bioresorbable Vascular Scaffold" and said it had the "potential to revolutionise treatment of coronary artery disease".
Arteries or blood vessels get clogged because of the build-up of cholesterol in the body. However, blood vessels are also elastic and can be expanded. Earlier, this was done by inserting simple stents. Then came drug-coated stents that reduced chances of blood clotting. The Bioresorbable Vascular Scaffold is being touted as the latest advance in this field. It is made up of material that goes into the sutures used in operations. And so, these pipes dissolve in a about a year's time after creating a new passage for blood flow.

• Eli Lilly, Strides Arcolab form partnership for cancer treatment drugs
US pharmaceuticals company Eli Lilly and Co and Bangalore-headquartered Strides Arcolab announced a partnership to expand the marketing of generic cancer treatment drugs in emerging markets, including India. According to a Strides Arcolab official, the deal is likely to take effect in the market only in the second half of 2013. Arcolab is not a very strong player in Indian market and has largely relied on exports. Through Eli Lilly India, it will be able to develop a broad-based oncology portfolio that will cater to the Indian and emerging markets.

Cerebrating METizans

Eureka!

• Ranbaxy stops production of generic Lipitor
The lots of atorvastatin, packaged in bottles of 90 and 500 tablets, are being recalled due to possible contamination with very small glass particles similar to the size of a grain of sand (less than 1 mm in size), it added.
"Due to this quality issue, Ranbaxy has decided to stop manufacturing atorvastatin until it has thoroughly investigated the cause of the glass particulates and remedied the problem," the statement said.

• Biological E launches Japanese encephalitis vaccine
Hyderabad-based vaccine company Biological E. Ltd on Thursday launched the county's first indigenous vaccine, JEEV, to prevent Japanese encephalitis, a mosquito-borne viral disease that affects the brain. "At the moment, there is no strong anti-viral therapy for this (Japanese encephalitis) except for a vaccine that the government imports from China," Mahima Datla, Senior Vice President, Biological E, said at the vaccine's launch in Hyderabad. "But the vaccine from China is typically made available in cases of major outbreaks and its supply is limited."

Bijal Dalal
(T Y B Pharm)

Fun With Elements

Q: Did you hear oxygen went on a date with potassium?
A: It went OK.

Q: Does anyone know any jokes about Sodium?
A: Na

Q: What did the scientist say when he found 2 isotopes of Helium?
A: HeHe

Q: What do you call a tooth in a glass of water?
A: One molar solution.

Q: What emotional disorder does a gas chromatography suffer from?
A: Separation anxiety.

Q: Why did the white bear dissolve in water?
A: Because it was POLAR.

Q: What weapon can you make from the elements potassium, nickel and iron?
A: K-Ni-Fe.

Q: What did one titration say to the other?
A: "Let's meet at the endpoint."

Q: Why do chemists enjoy working with ammonia?
A: Because it's pretty basic stuff.

Bijal Dalal (T Y B Pharm)
Chinmayi Naik (S Y B Pharm)

World Facts

- The chemical name for water (H2O) is dihydrogen monoxide.
- The human body contains enough carbon to provide 'lead' (which is really graphite) for about 9,000 pencils.
- Hydrogen is the most abundant element in the universe, while oxygen is the most abundant element in the earth's atmosphere, crust, and oceans (about 49.5%).
- The coldest state of matter is Bose-Einstein condensate super fluid…it defies gravity and instead of flowing downward, it flows upwards.
- The element californium is often called the most expensive substance in the world…as much as $68 million for 1 gram.
- Mosquitoes like the scent of estrogen; hence women get bitten by mosquitoes more often than men.
- Natural gas has no odour…The smell is added artificially so that leaks can be detected.
- The Nobel Prize in chemistry 2012 was awarded jointly to Robert.J.Lefkowitz and Brian.K.Kobilka for “studies of G-protein-coupled receptors".

Comic Capers

Entretenimiento...

- Apples, Potatoes and Onions all taste the same when eaten with your nose plugged.
- Carrots were originally purple in colour, changing in 17th century to orange with newer varieties.
- Strawberries are the only fruit which has seeds on its outer skin.
- Orange does not rhyme with any other word.
- From the age of 35 years about 7000 neurons are lost daily.
- The brain itself is incapable of feeling pain. Once the skull is opened it is possible to operate on the brain with the patient awake.
- If keeping cell phones in pocket keep the keypad towards you so that antenna faces away from you.
- When buying a cell phone – look for one with a low SAR or Specific Absorption Rate. Lower the SAR number the better. For example - Popular Motorola Razr V3x has a SAR of 0.14 – which is amongst the lowest seen recently.

Bijal Dalal
(T Y B Pharm)

Health Facts

- There are approximately 100000 miles of blood vessels on the human body.
- The only bone fully grown at birth is located in the ear.
- Gardening is said to be one of the best exercises for maintaining healthy bones.
- Enamel is the hardest substance in the human body.
- 1 in 2000 babies are born with a tooth that is already visible.
- Your thigh bone is stronger than concrete.
- Coughing can cause air to move through your windpipe faster than the speed of sound over a thousand feet per second.
- A person afflicted with hexadectylism has six fingers or six toes on one or both hands and feet.
- The stomach can break down goat's milk faster than the milk of a cow.
- Most heart attacks occur between 8 am-9 am.
- The human heart can create enough pressure that it could squirt blood at a distance of thirty feet.
- People that suffer from gum disease are twice as likely to have a stroke or heart attack.

Munira Loliwala
(F Y B Pharm)

Comic Capers

Entretenimiento...

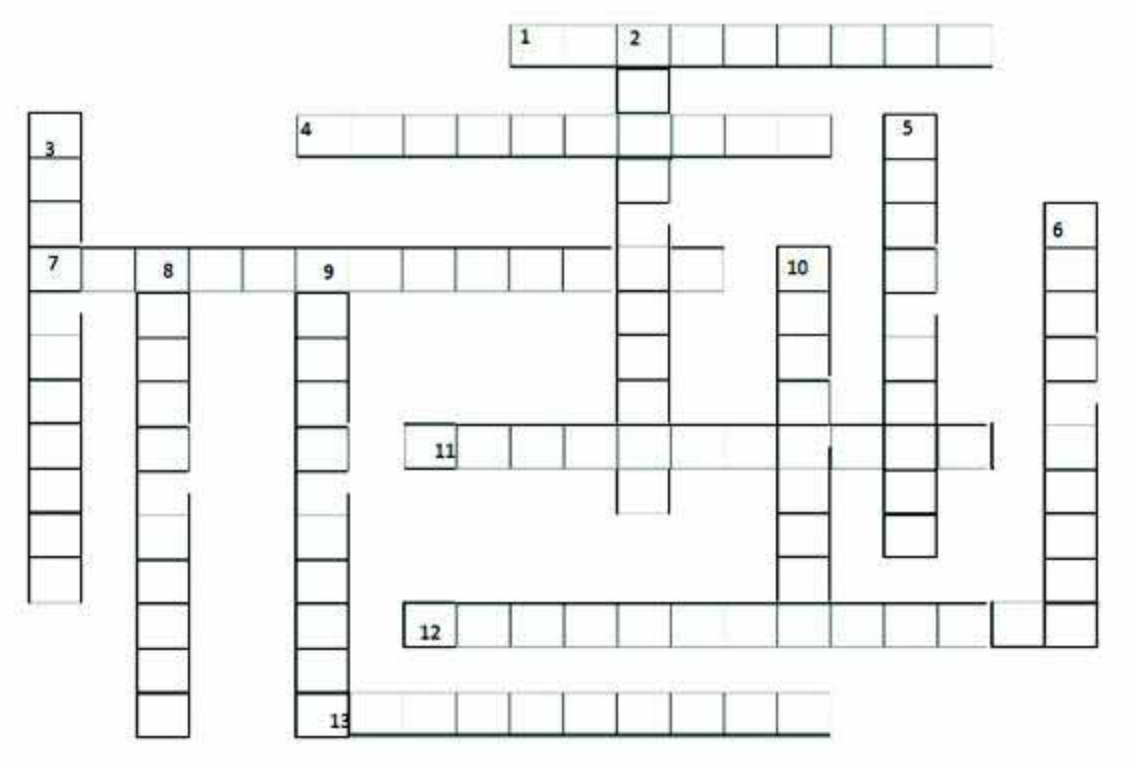
Brain Tonic—crossword (antibiotics)

Across

1. Class of bacteriostatic drugs that bind to the 50S ribosomal subunit & inhibit protein synthesis.
4. Chemical used in combination with imipenam to protect it from dehydropeptidase & prolong its antibacterial effect.
7. Combination of 2 folate antagonist that inhibit the synthesis of tetrahydrofolic acid.
11. Neuraminidase inhibitor drug administered orally for treating respiratory viral infections.
12. Drug active against anaerobic bacteria & protozoa that causes cell death due to inhibition of nucleic acid synthesis.
13. Bacteriostatic drug that inhibits arabinosyl transferase enzyme required for synthesis of mycobacterial cell wall.

Down

2. Beta-lactamase inhibitor used in combination with amoxicillin.
3. Antifungal drug that inhibits ergosterol production which inhibits cell wall synthesis.
5. Third generation cephalosporin that acts by adhering to bacterial penicillin binding protein & thus inhibits cell wall synthesis.
6. Antimalarial drug active against plasmodium falciparum which act by increasing oxidative stress on parasite.
8. Protein synthesis inhibitor which belong to class of Glycylcyclines.
9. Antihelmentic drug which inhibits formation of microtubules & glucose depletion in worms.
10. Anti TB drug that inhibits synthesis of mycolic acid needed for bacterial cell wall synthesis.



Answers

Across: 1. Macrolide 4.Cilastatin 7.Cotimoxazole 11.Oseltamivir 12.Metronidazole 13.Ethambutol
Down: 2. Clavulanate 3.Fluconazole 5.Cefotaxime 6.Quinacrine 8.Tigecycline 9.Mebendazole 10.Isoniazid

Dinesh Choudhary
(T Y B Pharm)

Everyday Chemistry

What's the Trick Behind Tricky Birthday Candles?

All candles are made out of paraffin wax. Every candle has a wick to burn. The difference between a normal candle and a trick candle is what happens when you blow it. When you blow a normal candle, a thin ribbon of smoke rises from the wick. This is nothing but vaporized candle wax. The wick is hot enough to vaporize the paraffin of the candle but not hot enough to re-ignite the blown candle.

Trick candles work a little differently from a normal candle. The wicks of this candle have a special material, which ignites at a relatively low temperature. When you blow a trick candle, the left over heat from the wick re-ignites this special material and the candle starts burning again. The flame that burns after blowing out the trick candle is burning paraffin vapor.

Meet the special material in trick candles

The special material added to the wick of trick candles is usually flakes of magnesium. Magnesium doesn't require too much heat to start burning. The magnesium flakes start burning when you blow out the candle and ignite the vaporized paraffin. When you blow out the candle, the magnesium flakes appear as tiny particles on the wick and the magic begins.

One particle is enough to re-start the spark and in turn re-ignite the vaporized paraffin. The magnesium in the rest of the wick does not burn as the liquid paraffin separates it from oxygen and keeps it cool.

So the next time you blow out a magic candle, you know why the flames reappear!

Why Do Old Books Become Yellow?

Walk into a big library, and you'll see many old books that have become yellow and brittle. Why did that happen?

Paper is made from wood. Wood is in turn made of carbohydrates like cellulose and lignin. Lignin adds hardness to wood. More the lignin, harder is the wood. However, in paper it is a problem. Over time, lignin breaks down to form many phenolic acids, which are yellow in color. These acids then react with cellulose. This causes the paper to become very brittle.

Since then, paper manufacturers remove lignin from the wood pulp before it is made into paper. These require additional chemical reactions. In addition, the paper is made alkaline by adding calcium bicarbonate. If any lignin is left in the paper, when it forms acid, the calcium bicarbonate will immediately react with it and 'neutralize' it. This kind of paper is called acid-free paper.

All this makes the paper expensive. Things like newspapers, tickets, notebooks etc are therefore not printed on it. But all books nowadays are printed on acid-free paper.

Why Ice Cubes are Cloudy Inside?

Have you even tried to see through an ice cube? It's always a little hazy. Isn't it strange that transparent water when frozen becomes cloudy ice?

Water consists of several gases and minerals like calcium and magnesium salts that are naturally dissolved in it. These impurities in water reduce freezing point of water. Pure water will freeze at 0 degree celsius, while water that has impurities in it will freeze at a temperature that is lower than this. In fact, the more the dissolved gas and minerals there is in water, the lower its freezing point will be.

When water freezes?

When water begins to freeze, a thin layer of ice starts to form on top. This is made from pure water as pure water freezes

quicker than impure water.
The pure water becomes solid while the minerals and gases are still in a solution state. The rest of the liquid freezes slowly from the outside to the inside. The centre of an ice cube is what freezes last.
There are layers of increasing concentration of impurities towards its centre. This concentration of gases results in light being refracted through the piece of ice causing it to look cloudy. Sometimes, the gases dissolved in the solution release in the form of microscopic bubbles which freeze as the ice freezes. You can also see these frozen bubbles if they are formed, inside the ice cubes.

Why Do Onions Make You Cry?

Your mother asks you to chop some onions and the mere thought of it can literally make you cry.
Onions contain amino acid sulfoxides that form sulfenic acids in the onion cells. Both the enzymes and the sulfenic acids are kept separately in the cells. When you cut the onion, the otherwise separate enzymes start mixing and produce propanethiol- S-oxide, which is a volatile sulphur compound that starts wafting towards your eyes. The gas that is emitted reacts with the water of your eyes and forms sulphuric acid. The sulphuric acid thus produced causes burning sensation in your eyes and this in turn leads to the tear glands secreting tears. Thus you end up with watery eyes every time you cut onions .
It is the sulphur compound in the onions that also leave a typical odor of onions on your hands and utensils even after washing.

Tips to avoid tears

• Make sure that you keep your fans off while cutting onions. If it is running, the air is on constant circulation, which will lead to the spread of gas and increase the burning sensation in your eyes.

• Refrigerate the onion before cutting. By refrigerating, you freeze the enzymes from mixing with the sulfenic acids and the production of propanethiol- S-oxide is stopped. As a result, sulphuric acid is not formed when you chop the onions. Wear safety goggles while chopping onions. It is also a good idea to keep away the gas from reaching your eyes.
• Cooking the onion inactivates the enzyme. So cook the onion after you de-skin and before cutting it. Soak onions in water before cutting. Water absorbs the gas and you can avoid the tears.
• Lighting a candle or a lamp near the chopping board is another effective way to avoid the tears. When a candle is lit near the chopping board the gas that is emitted from the onions get drawn towards the flame of the burning candle or lamp and it does not reach your eyes
• Avoid cutting the onion till the root. This will prevent the mixing of enzymes with the sulfenic acids and you can spare your eyes from the burning sensation and tears.

Have You Ever Wondered Why Meat Changes Color at Different Stages of Cooking?

This is because of the Maillard reaction. The Maillard Reaction occurs when the amino acids in the meat react with the reducing sugars to form colors and flavors. When meat is cooked, it changes color and the flavors also change. This phenomenon is taken for granted by many cooks, but it is actually the result of chemical reactions that are caused when the temperature of the meat is increased. Food chemistry is not based on just one reaction. It is a complex series of reactions, which occur between chemicals that are found in meat. This results in new chemicals with strong flavours to be produced. They are also the cause of brown coloration of cooked meat.
The reaction is not limited to meat, but also to the browning in toast, beer and many other foods. All of these are the result of the Maillard reaction. This is an example of non-enzymatic browning. The Maillard reaction forms colors and flavors in food that are appreciated by those who eat them. Some leaner, white meats do not have many reducing

sugars, so they do not develop such a brown color and have fewer flavours.

Is Jelly a Solid or a Liquid?

We enjoy having jelly for dessert. It is not only a colorful dessert, the way jelly wobbles makes us enjoy playing with it while we eat.

What is jelly made of?

Jelly comes in powdered crystals that you add to hot water. But what does this jelly powder contain? Jelly is a processed form of protein called collagen.

These chains of collagen protein stick together giving jelly its wobbly nature. These chains of collagen protein stick together. They are bound to each other in a triple helix of hydrogen bonds. This gives jelly its wobbly nature. When you heat jelly, these protein chains move freely and do not stick to each other, as the jelly cools down the protein chains get entangled in a loose network. This is why jelly is more liquid like when it is hot and wobbly when it sets.

Have you ever heard about the pineapple and jelly experiment?

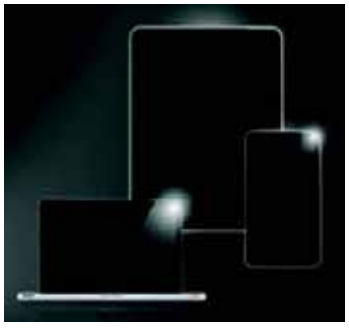
Have you ever noticed a warning message on the back of jelly packets, warning you not to add pineapple in jelly? If you pay no heed and do add pineapple, you will notice the jelly slowly returns to its liquid state!

The reason for this is simple; pineapples contain an enzyme called bromelain, which break down proteins. Since protein is what jelly is made of, the bromelain in the pineapples break the protein chains, causing the jelly to return to its liquid state.

Meet Cerium - The Rare Earth Element

Cerium is an element used in flat television screens and compact discs and such important electronic devices.

Basic Info - Cerium is called a rare earth metal. But ironically, it is more abundant on earth than copper and lead. As an element, cerium does not have any uses. This is because it tarnishes easily and is very reactive with water. It will also ignite if simply scratched with a knife. Its compounds, however, are very useful.



Uses - It is non-toxic and can be used to reduce particulate emissions from diesel combustion engines and help people who suffer from asthma and bronchitis. It is also used to make electronic appliances such as flat-screen TVs, low energy light bulbs and compact discs.

Periodic Table - Cerium is present in the periodic table in a group called the Lanthanides. Its atomic number is 58

The Brighter Side - This element has lot of potential and will soon be used widely. This is mainly because it can be used to reduce particulate emissions from diesel combustion engines and it helps to produce a safe red dye, which can be used in paints.

Why Do Fishes Smell?

Heard of the saying "something smells fishy"? Have you noticed how a fresh fish smells different from one that is not so fresh?

The cause of the stink

Fishes smell because of a natural process of decay. Bacterial enzymes attack the flesh of the fish. This triggers an oxidation reduction reaction. The muscle of the fish contains a substance called trimethylamine oxide (TMAO) which is

broken down by decomposition. The result is trimethylamine and dimethylamine. The mixing of these two amines results in that characteristic fishy smell. In fact, it is the presence of trimethylamine that is used as an indicator of how fresh a fish is.

Removing the smell
Using lemon, vinegar or baking soda will reduce the smell of the mixing amines. Amines are alkaline based and lemon juice is acidic in nature, thus mixing the two neutralizes the effect of each other. This is why lemon is added to fish preparations to remove the strong smell of fish.

Phosphorus-The Chaperone of Light

Ever since man discovered fire, it has been an indispensable aspect of our everyday life. Wondering what phosphorus has to do with fire?
Phosphorus has the ability to ignite readily and hence is used as the main constituent in the heads of matches. It smoulders in air, and when it is warmed, it bursts into flames thereby producing thick, acidic smoke.
In the late 17th century, a German alchemist named Hennig Brandt heated the solid residue that was formed by the evaporation of urine. The distilled vapour glowed in the dark. As a result of this observation, Brandt named his new discovery Phosphorus, which meant "bringer of light".

What Renders Garlic Its Pungent Smell?
Everyone relishes garlic bread but even one bite later you realize that not just your mouth but even your sweat smells funny.

The cause of foul smell
Garlic is made up of sulphuric compounds that render the pungent smell to it. Also, when we put garlic in our mouth, it encourages the growth of certain bacteria that is already present in our mouth. This leads to bad breath.
Garlic contains allyl methyl sulphide, which is the reason for the pungent smell. Once it is in our body, it gets to the pores of our skin and when we sweat, it gets expelled and causes the sweat to smell. The allyl methyl sulphide also enters our lungs and contaminates the air inside. As we breathe, the air enters our lungs, gets contaminated and comes out as we exhale. This is why our breath smells.
The effect of this chemical lasts for few hours but the bad breath and body odour will continue till it is completely thrown out of our system by way of sweat or excreta.

How to get rid of the smell
• Brush your teeth and wash your mouth with a good mouthwash to kill the triggered bacteria that adds to the foul smell.
• Have a good shower to wash off the stinky sweat.
• Dab your skin with some good smelling powder or deodorant to keep the smell away.
• Research has shown that drinking milk helps bring down the effect of garlic in our blood stream and thus reduces the odour from reaching the lungs.
• Another way to reduce the effect of garlic is to have parsley and sprigs. This is the reason why parsley and sprigs are combined with garlic in many of the exotic food preparations.

How do Pop Rocks Candies work?

Comic Capers

Entretenimiento...

Each one of us has definitely tasted the candy that makes a loud "popping" sound the minute we put them in our mouth. These pop candies are definitely fun to eat. But have you ever wondered what lends the popping characteristic to these candies?

What are pop rock candies made of?
Popping candies are made by mixing sugars sucrose, lactose and other flavours. This mixture is then heated to melt them. The molten mixture is then exposed to high-pressure carbon dioxide. The pressure is almost 40 times more than atmospheric pressure of 600 psi. The carbon dioxide dissolves the sugar and the mixture is then cooled and the pressure is brought down. At this point the dissolved carbon dioxide tries to escape and in an attempt forms bubbles. But since the sugar is solidifying, large bubbles break the sugar into small lumps or rocks.

What happens when I eat them?
The small rock candies still have the small bubbles of carbon dioxide trapped in them. The small bubbles hide in the molecules of the rocks under great pressure. When we eat these candies, we break the rock sugar mechanically or weaken the sugars by dissolving the outer layers with our saliva. As a result, the bubbles explode, creating a loud popping sound.

Are they harmful?
Pop candies are not dangerous at all. They are simply fun to eat. Pop candies release just one tenth of carbon dioxide as compared to the amount released from a mouthful of cola drink. Except for the carbon dioxide, the ingredients are same in a pop candy just like any other hard candy!
So don't worry, just enjoy the popping effect of these candies!

What Is a CAT Scan?
A CAT scan is a special kind of X-ray. It provides a three dimensional image of what is inside an object by using several two dimensional X-ray images. You may have seen a nurse giving patients an injection before the CAT scan begins. This is usually a solution of iodine. In a CAT scan bones appear light while tissues appear dark. This is because each absorbs a different quantity of X-rays. Bones are able to absorb more X-rays than tissues. Doctors use a contrast agent also known as a dye. An iodine dye is used to make the tissues more visible during the scan. This is injected in a vein or a specific area to provide better visibility in that area.

How iodine helps
The muscle tissue absorbs the aqueous iodized organic compounds or barium sulphate that is injected. Being heavy, it increases the density of the muscle. This makes it more visible during the scan.

Why is the cabbage red in colour?
Red cabbage is one of many fruits and vegetables that contain a class of reddish purple pigments called anthocyanins, which is responsible for its colour. Anthocyanins are a type of flavonoid pigment that are responsible for the red, purple and blue colours in most plants, leaves, flowers and fruits. These pigments have a tendency to change colour when mixed with alkaline or acidic ingredients.

How does the change in colour occur?
Red cabbage contains at least thirty-six of the over 300 different anthocyanins that exist. These pigment molecules are stored in the cells of the red cabbage leaf. When exposed to heat during cooking, the cells containing anthocyanins burst

open and cause the water-soluble colour pigments to bleed into the surrounding liquid. This is why there is immediate colour change in the cabbage and the cooking water.

Anthocyanins pigments are sensitive to changes in pH
Anthocyanins consist of many carbon rings onto which hydrogens are attached. This particular chemical formation allows these molecules to take on two forms. In one form, a hydrogen atom present is attached to the exterior and in the other form it is not. Acidic ingredients are characterized by having more hydrogen atoms (H+) than hydroxyl groups (OH-) so when exposed to acid, anthocyanins grab a hydrogen atom and turns red in colour. In alkaline conditions where there are no excess hydrogen atoms, the molecule appears blue or green in colour.

Can I minimize / enhance the colour changes in red cabbage?
Yes, this can be done with the help of certain kitchen ingredients. Anthocyanin turns red in acidic conditions when the pH is less than seven. It is not uncommon for apples or lemon juice to be part of braised red cabbage recipes because they help maintain the its red colour. Common acidic ingredients used in cooking include: 1) Vinegar 2) Lemon juice 3) Citric acid 4) Fruits and fruit juices

Spermaceti Wax
It is a wax that is most often found in the head cavities of the sperm whale(small quantities of spermaceti can be found in the oils of other whales). Originally mistaken for the whale's sperm (hence the name), spermaceti is created in the spermaceti organ inside the whale's head.
Two competing theories for the spermaceti organ's biological function suggest it controls buoyancy, or acts as a focusing apparatus for the whale's sense of echolocation. The most likely primary function of the spermaceti organ is to add internal echo or resonator clicks to the sonar echo location clicks emitted by the respiratory organs. This makes it possible for the whale to sense the motion of its prey as well as its position. The changing distance to the prey affects the time interval between the returning clicks reflected by the prey (doppler effect). The buoyancy theory holds that the sperm whale is capable of heating the spermaceti, lowering its density and thus allowing the whale to float; in order for the whale to sink down again, it must take water into its blowhole which cools the spermaceti into a denser solid. This claim, however, has been called into question by recent research which indicates a lack of biological structures to support this heat exchange, as well as the fact the change in density is too small to be meaningful until the organ grows to huge size.
A botanical alternative to spermaceti is a derivative of jojoba oil, jojoba esters.It is a solid wax which is chemically and physically very similar to spermaceti and may be used in many of the same applications. Esters of cetyl alcohol and jojoba oil are used as a substitute for spermaceti.
After killing a sperm whale, the whalers would pull the carcass alongside the ship, cut off the head and pull it on deck, whereupon they would cut a hole in it and bail out the matter inside with a bucket. The harvested matter, raw spermaceti, was stored in casks to be processed back on land. A large whale could yield as much as 500 gallons. The spermaceti was boiled and strained of impurities to prevent it from going rancid. On land, the casks were allowed to chill during the winter, causing the spermaceti to congeal into a spongy and viscous mass. The congealed matter was then loaded into wool sacks and placed in a press to squeeze out the liquid. This liquid was bottled and sold as "winter-strained sperm oil". This was the most valuable product: an oil that remained liquid in freezing winter temperatures. Later, during the warmer seasons, the leftover solid was allowed to partially melt, and the liquid was strained off to leave a fully solid wax. This wax, brown in color, was then bleached and sold as "spermaceti wax".

Bijal Dalal
(T Y B Pharm)

Comic Capers

Entretenimiento...

Anagrams

It's time to rack your brains! Jumble up these phrases to get another phrase with synonymous ideas…Here's a list of 20 such words/phrases…solve them up…Let's see how far you go!!

1- Mother-in-law = _o_ _n _l_ _er
2- I'll make a wise phrase: _il_ _a_ _h_ _es_e_ _e
3- The eyes = _he_ _ _e
4- Deductions = D_s_ _u_t_d
5- Bad credit = _eb_ _ c_r_
6- Dirty Room = _o_ _it_ _y
7- I'm a Dot in Place = _ _e_im_l _o_ _t
8- On scale of sin = _o_ _e_si_ _al
9- Moonstarer = _s_r_n_ _er
10- Bag Manager = _a_ _a_e m_n
11- Listen = _il_n_
12- Trims cash = _h_i_t_a_
13- Eleven plus two = _w_ _v_ p_u_ _n_
14- To see place = A _e_e_ _o_e
15- Warm Voice = _i_ _ow_v_
16- Hot water = _o_ _h t_ _
17- Comfort is = _i_ _o_ _f_
18- Go Get Oils = _e_l_ _i_t
19- A rich man = _h_ir_ _n
20- Where moist = _h_w_ _ _l _e

Answers

Women Hitler, William Shakespeare, They see, Discounted, Debit card, Dormitory, A Decimal point, Confessional, Astronomer, Garbage man, Silent, Christmas, Twelve plus one, A telescope, Microwave, Worth tea, Microsoft, Geologist, Chairman, Shower time.

Arjav Modi
(T Y B Pharm)

Sher-o-shayaris

DARIYA jitna syllabus hai,
NADIYA bhar padh paate hai,
JUG bhar jitna likhte hai,
Par CHULLU bhar marks aate hai.

Idhar khuda hai, udar khuda hai,
jidar dekho udar khuda hai,
Idhar-udhar bus khuda hi khuda hai
jidhar nahi khuda hai....
udhar kal khudega!

Koi mar nahi jaata injection lagvane se,
Koi mar nahi jaata injection lagvane se,
Bas uthne-bethne ke pose badal jaate hai….

OUR DEAR TV!
Cable TV brings us nothing but trouble,
The power of my spectacles double,
Our studies begin to jumble,
And our marks begin to tumble!

Comic Capers

Entretenimiento...

Laughter is the best medicine…
And beta blockers know it!!!
Atenolol
Metoprolol
Propanolol

If you think you are too small to be effective,
Then you have never been in dark with a mosquito.

Enthusiasm is contagious,
So smile out each day and spread an epidemic,
Because
PAST is a HISTORY,
FUTURE is MYSTERY,
PRESENT is a GIFT …that's why we call it a present.

Trials keep you strong,
Sorrow keeps you human,
Failures keep you humble,
Success keeps you glowing
But
Only god keeps you going!

An arrow can only be shot by pulling it backward,
So when life is dragging you back with difficulties,
Just imagine that it's going to launch you into
something great.

You sow a thought, you reap an action,
You sow an action, you reap a habit,
You sow a habit, you reap a character,
You sow a character, you reap a destiny.

A Happy Formula For Success
Master Formula:

SR. NO.	INGREDIENTS	QTY. GIVEN	QTY. TAKEN
1.	Hard work	400ml	400ml
2.	Confidence & Hope	200ml	200ml
3.	Concentration	200ml	200ml
4.	Neatness	100mg	100mg
5.	Prayers	100ml	100ml

PROCEDURE:
1. Add concentration to hard work and mix it properly with confidence and hope.
2. Add neatness for a better taste.
3. At the end, sprinkle prayer well before serving.
USE: If you follow this formula, you are sure to achieve success in life.

10 amazing accidental discoveries..!

1. **Fireworks:** Originated in China some 2,000 years ago, and legend has it that they were accidentally invented by a cook who mixed together charcoal, sulfur, and saltpeter -- all items commonly found in kitchens in those days. The mixture burned and when compressed in a bamboo tube, it exploded. There's no record of whether it was the cook's last day on the job…..

2. **Corn flakes:** In1894, Dr. John Harvey Kellogg was the superintendent of the Battle Creek Sanitarium in Michigan. He and his brother Will Keith Kellogg were searching for wholesome foods to feed patients that also complied with the Adventists' strict vegetarian diet. When Will accidentally left some boiled wheat sitting out, it went stale by the time he returned. Rather than throw it away, the brothers sent it through rollers, hoping to make long sheets of dough, but they got flakes instead. They toasted the flakes, which were a big hit with patients, and patented them under the name Granose. The brothers experimented with other grains, including corn, and in 1906, Will created the Kellogg's company to sell the corn flakes.

3. **Popsicle (ice candy):** In1905, Frank Epperson was 11 when he left a drink outside on a cold night and found it to be frozen. Two decades later he patented his frozen ice on a stick.

4. **Teflon:** In1938, Roy Plunkett was trying to create a new CFC but inadvertently created some white flakes. The flakes turned out to have non-stick properties.

5. **Microwave oven:** In 1935, Percy Spencer was testing a magnetron when he noticed a chocolate bar in his pocket had melted. He found microwaves had cooked his candies.

6. **Superglue:** In 1942, Super Glue, also known as cyanoacrylate, was originally discovered in 1942 by Dr. Harry Coover, he was attempting to make clear plastic gun sights to be put on guns used by Allied soldiers in WWII. One particular formulation he came up with didn't work well for gun sights, but worked fantastically as an extremely quick bonding adhesive. Surprisingly, despite the commercial potential of such a product he ignored it for 6 years.

7. **Saccharin:** In 1879, Constantin Fahlberg didn't wash his hands after working with coal tar. The chemicals on his hands made his food taste sweet and saccharin was born

8. **Velcro:** In 1941, George De Mestral noticed seeds would stick to him and his dog. He found these seeds to have tiny hooks and from there he got the idea of Velcro.

9. **Pacemaker:** In 1958, Wilson Greatbatch installed the wrong resistor in an oscillator designed to record heart sounds. The result circuit pulsed at same rate as human heart.

10. **LSD:** In 1938, it was accidently produced during research into the medicinal uses of crop fungus by Albert Hoffmann. He accidentally ingested the drug and discovered its hallucinating properties.

Bhavini Panchal
(T Y B Pharm)

Did You Know?

A sliced CARROT looks like human eye,
The pupil, iris and the radiating eyes just look like human eye,
And science shows that it greatly enhances blood flow to and function of eyes.

A WALNUT looks like a little brain,
The left & right hemispheres, upper and lower cerebellum... Walnuts help to develop more than 3 dozen neurotransmitters for brain.

Kidney beans actually heal and help to maintain kidney functions,
They exactly look like human kidneys.

A TOMATO has 4 chambers and it is red,
The heart has 4 chambers and it is red,
Research shows that tomatoes are loaded with lycopine,
and are indeed pure blood and heart food.

Sweet potatoes look like pancreas,
And actually control glycemic content of diabetes.

Celery, rhubarb look like bones,
These foods specifically target bone strength,
Bones contain 23%sodium and so do these foods,
These foods replenish the skeletal needs of our body.

Olives assist the health and functions of ovaries.

Tanvi Kadam
(T Y B Pharm)

Comic Capers

Entretenimiento...

Some Bollywood songs indicate a pathophysiological condition...identify Them...

1 Jiya jale jaan jale, raat bhar dhua chale
2 Tadap tadap ke is dil se aah nikalti rahi
3 Suhani raat dhal gayi, na jaane tum kab aao
4 Bidi jalayle, jigar se piya, jigarma badi aag hai
5 Tujhe yaad na meri aayi, kisise ab kya kehna
6 Mann dole, mera tan dole
7 Tip tip barsa paani, paani mein aag lagayi
8 Hay re hay,neend nahi aaye
9 Lagi aaj saawan ki, fir vo jhadi hai

Answers:

Fever, Heart attack, Constipation, Acidity, Alzheimer's disease, Vertigo, Urinary Tract Infection, Insomnia, Diarrhoea

Bijal Dalal
(T Y B Pharm)

MET Facts

1. Institute of Pharmacy was initially in the MET Rishikul building on the 1st floor!
2. Ever since MET began, Sanjay Pallav(Pallav Sir) and Vijay Gawde(Gawde mama) have been a part of this institute.
3. Jadhav Sir is an amazing chef and loves cooking!
4. Mohite Sir handled the OC lab and the sports sole handedly from 1996 to 2005!
5. Sudhir Sir sings amazing bhajans and is still learning singing with the harmonium!
6. Rashmi Ma'am has received a gold medal in M. Pharm from the then Prime Minister in 95-96. She has also won the first prize in inter-university antakshri!
7. Aushima Ma'am is afraid of closed places, that is, she is claustrophobic.
8. Sonali Ma'am has won elocution competition in three languages, English, Marathi and Sanskrit!
9. Sheeja Ma'am is very creative. She is amazing at making the best out of the waste!
10. Priyanka Ma'am is a Visharad (Completed all levels) in Bharatnatyam.
11. Vaishali Ma'am and Poonam Ma'am were classmates during their B. Pharm in BCP and Raheja Ma'am was their one year senior!
12. Bhagyashree Ma'am and Madhura Ma'am both can speak German!
13. Vrushali Ma'am has cleared two classical singing examinations and has also acted in a play on television!
14. Bhagyashree Ma'am and Sheeja Ma'am were senior and junior in their B.Pharm College, classmates during their M.Pharm and now colleagues!
15. Nikita Ma'am has been the University topper in B. Pharm as well as M. Pharm. She has written two religious books!
16. Abha Ma'am is trained in classical singing. She knows how to play the sitar and the tabla. She is also a good athlete and has participated in kho-kho, badminton and high-jump!
17. Sindhu Ma'am has learnt karate. She's a brown belt!
18. Mallika Ma'am has been the best athlete in her school and college life. She was also selected for the Semi-Finals of Pantaloons Femina Miss India from the Nothern Region in 2009.
19. Vijaya Ma'am has done the National Himalayan Trek, thrice till date!
20. Madhura Ma'am and Bhavna Ma'am were batchmates of AISSMS, Pune.

Hetuk Shah (T Y B Pharm)
Mihir Patwardhan (T Y B Pharm)
Deep Majithia (S Y B Pharm)

Art Galore

Strokes strike Again!

Mr. Sankalp Gharat

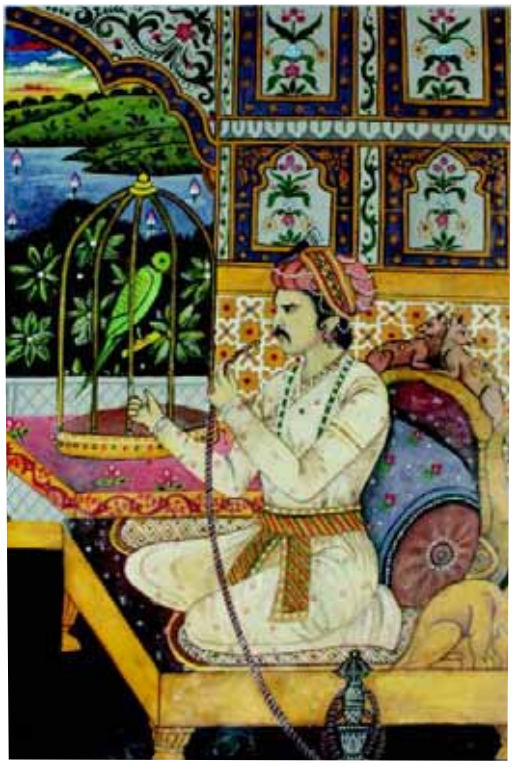
Mr. Sankalp Gharat

Mr. Sham Patil

Mr. Sham Patil

Art Galore

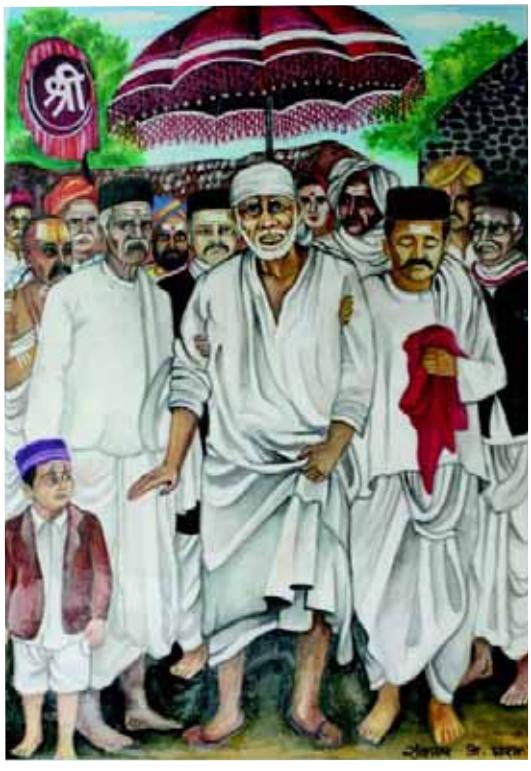
Strokes strike Again!



Mr. Sankalp Gharat

Mr. Sankalp Gharat

Mr. Sankalp Gharat



Mr. Sankalp Gharat

Art Galore

Strokes strike Again!

Mr. Sameer Patil

Mr. Sameer Patil

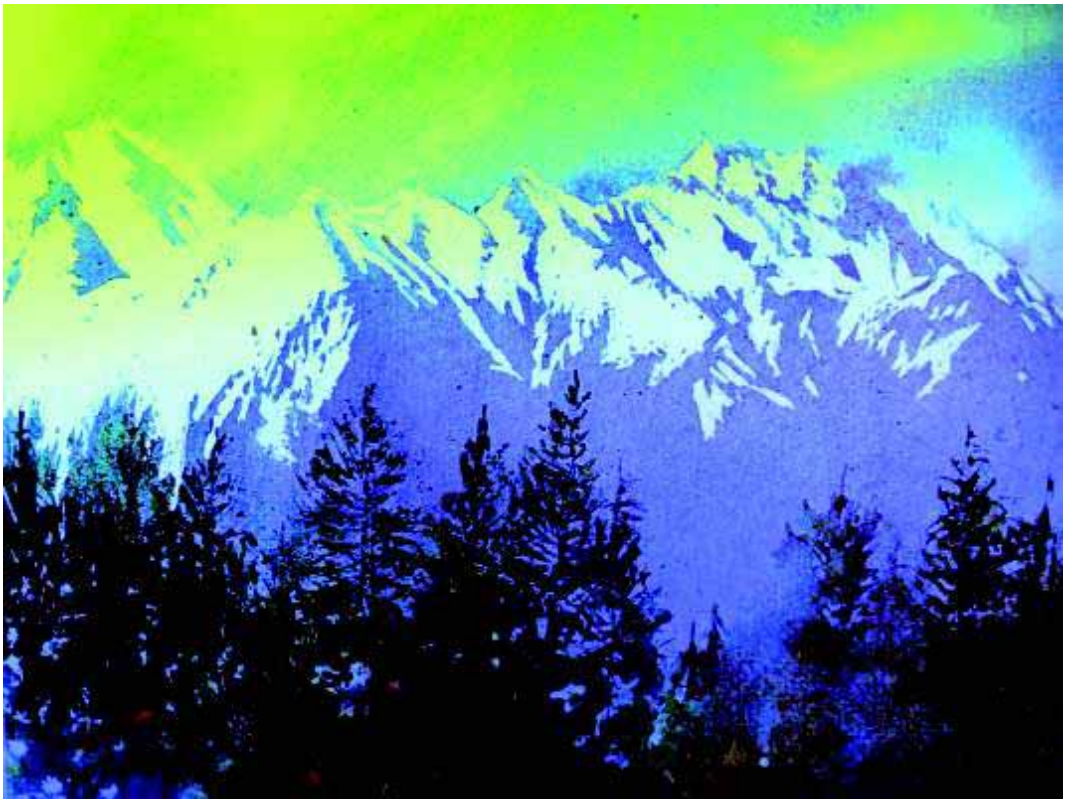
Ms. Mallika Jolly

Mr. Sankalp Gharat

Art Galore

Strokes strike Again!

Mr. Sameer Patil



Mr. Sameer Patil

Art Galore

Strokes strike Again!

Mr. Sankalp Gharat

Mr. Sameer Patil

Ms. Pooja Dubey

Ms. Pooja Dubey

HUMANS

What a happy soul the creator was
When only the trees swung with life,
Rivers ran gently with persiviancy,
Mountains made boundary to the sky,
Sky housed the high aimed free birds.
Down the line another creation lay,
Wise and intelligent humans as we say,
There he was listening to all our pain,
Then he could never rest again..!
Trees became pillar of our growing dreams,
Sky housed clouds of gases and dust,
Rivers do run with filth and muck,
Glaciers melted their way to billowy seas.
Everything created for survival of us,
We destroyed it turning into a curse,
The universe is energy as creator says,
So let's stop before we transform energy's
Living breathes into bed of death.

Bhavini Panchal
(T Y B Pharm)

TENSION

The moment you are in TENSION,
You will lose your ATTENTION,
Then you are in total CONFUSION,
And you will feel total IRRITATION,
Then you will spoil personal RELATION,
Ultimately you wont get CO OPERATION,
Then you will have to be in MEDICATION,
Instead understand the SITUATION,
And try to think about the SOLUTION,
Many problems will be solved by DISCUSSION,
You will do better in your PROFESSION,
If you understand my INTENTION,
You will never again get TENSION.

Amruta Baisane
(S Y B Pharm)

Water and life....!

Down the mountains the holy water flows,
Running cold and still its pearl glistens and glows.
Houses millions of aquatic lives in deep blue seas,
It breathes oxygen into them, with cool gentle breeze.
It nurtures a young seed into a tall fruitful tree,
Spreads scent on merging with the soil giving us glee.
It is a universal solvent for all chemical reactions,
A healthy purifying solvent for all biological actions.
It runs with persistancy breaking the gigantic rocks,
A tutor to humans on never losing hope from mental blocks.
Sadly, now the rivers flow all dirty, filthy and impure,
The "wise" and mean humans will face its wrath for sure.
For as water gives, its rage even takes breathes,
Its fierce nature turns sea into violence giving deaths.

Bhavini Panchal
(T Y B Pharm)

Our last year in college

This is our last year in college
And we are going to leave it soon,
Studying here has been a big boon,
Our hearts are grieving at the departure,
Which shall be so soon.

We have enjoyed the risks and tensions,
The smiles, laughter, despair and success.
But, in the end we corrected our lapses,
We will leave with fresh and sweet reminiscences.

No more will we be in classes,
In the library or Principal's room.
No more would we wear those I-cards,
New flowers will come here to bloom.

And we will leave….
With warm heart and face streaked with tears,
And we will say with pride,
We were the students of M.E.T.I.O.P.

Iswarya Sridhar
S Y M Pharm

LAMP

Life is like a Lamp.
You never know,will it be bright,will it be dull,
Lamp glows bright when you are happy,
Lamp flickers when you are sad.
Lamp is like Life.
You never know, will it glow bright, will it flicker.
Some happy days you gleam,
Some sad days you groan,
Some nights joyous and you glow
Some nights miserable and you shatter.
Life is like a Lamp.
Lamp is like Life.
Both, its presence inevitable.
and,
absence unacceptable,
yet it glows one day,
but..
goes "OFF" one day!

Sahana Ray
(S Y B Pharm)

जल - जीवन का शिक्षक

जल जीवन का शिक्षक है
हमको कई पाठ पढाता है ।
अनुपम गुण जो इसमे हैं
हमको ये सिखलाता है ।। १।।
निर्मल निर्मल ,शीतल शीतल
कोमल कोमल और तरल तरल।
निर्झर निर्झर ,पुलकित पुलकित
चंचल चंचल और सरल सरल।। २।।
निर्मलता कि क्या परिभाषा है
पारदर्शिता का ज्ञान बताता है।
जो अंन्दर हो वह बाहर हो
इस बात को वो समझता है।। ३।।
शीतलता अगर अपने अन्दर हो
मन को सुकून दे जाता है।
औरों को भी शीतल करता है
दग्ध हृदयों को संतृप्त कर जाता है।। ४।।
कोमलता की क्या हम बात कहें
मां के स्पर्श-सा मृदुल लगता है
अगर कठोरता हम बन जाते हैं
सरल तरल बन जाते है।। ५।।
जब जैसा मौसम मिल जाये
वैसा तुम्हे बन जाना है
गर्मी मे वाष्प बन जाना है
बारिश बन अंगन मिटाना है।। ६।।
सफलता की उँचाई पर हो गए
बिन गुरूर शीश उठाना है
फिर नीचे कभी भी आये तुम
खिल खिलाते आगे बढ जाना है ।। ७।।

आभा दोशी

हतबल

हतबल रे,हतबल झालय जगण माझ
खरच सांगतो,जड झालय आता हे ओझ.....

कधीतरी मनात प्रश्न येतो,
जीवनाच्या निर्माल्यात शोधतोय मी काय?
ओसाड अशा जमीनीवर ,
मी रोप जगवू पाहतो आहे की काय!!

आज नाही तरी उद्या मात्र
आयुष्यात प्रकाशाचे किरण येतील,
आशा माझ्या पल्लवीत करून..
आयुष्य झळाळून जातील....

भूतकाळ हाती नव्हता,
पण वर्तमान मात्र आहे
वर्तमानाच्या जोरावर भविष्य घडवण्याची
कुवत माझ्यात आहे.

एकच सांगतो शेवटी की ,
बिकट परिस्थितीसमोर मी नमणार नाही ,
समाजाचे ऋण चुकवतांना
कितीही अडथळे आले तरी मी हार मानणार नाही.....

संकल्प अशोक घरत
तृतीय वर्ष बी फार्म

वात्रटिका

वडिलोपर्जित धंदा

इथुन-तिथुन सारेच
पोरासोरांसाठी अंध होत आहेत.
घराणेशाही विरूध्द बोलणारे
आवाज बंद होत आहेत.
काल पर्यंत जो बोलला होता,
तोच आज मींधा झाला आहे।
राजकारण म्हणजे
वडिलोपर्जित धंदा झाला आहे।।

मिलिंद निळकंठ दामले.

जिंदगी

बच्चों कि हॅसी में होती है जिंदगी ,
गुड्डे-गुडियो कि कहानियों मे होती है जिंदगी....
मासुमियत जो नजर आए नन्ही परियों मे ,
नाराजी उमड आए टूटे खिलौनो मे ,
ऐसी शरारती होती हे जिंदगी ।

लहरो सी चंचल होती है जिंदगी ,
सागर की गहराई से भी गहरी हमराज होती है जिंदगी ...
अधूरा है सागर जैसे पानी की बेरंग रंगो के बिना ,
अधूरी है जैसे शायरी , किसी शायर के बिना ,
वैसे ही अधूरी होती है जिंदगी ,
किसी हमसफर के बिना ।
ओस की बूंदो सी नाजुक होती है जिंदगी ,
फुलों के तमाम रंगो से ,
पानी के बेरंग बूंदो से ,
पेडो की हरियाली से ,
सूरज की सुनहरी किरनो से लथ पथ होती है जिंदगी।
हर मोड पे जो दोस्त साथ दे,
उस दोस्त की तरह होती है जिंदगी।
सुख -दुख में जो साथ दे ,
उस हमसफर के जैसी होती है जिंदगी।
हॅसने-हसाने वाले तो कई मिल जाते है राहो मे ,
कोई रूलाकर हॅसाए तो कोई और बात हैं
कोई हॅसकर गले लगाले सारे गमोंकी
तो कोई और बात है।
इन्ही सारी बातोंसे तो बंनती है जिंदगी ,
हर पल खूबसूरत बन जाती है जिंदगी।

अनघा सोनावणे
तृतीय वर्ष बी फार्म

पानी मे जीवन या जीवन मे पानी

पानी में जीवन या जीवन में पानी है;
मानो तो पूरा जीवन पानी है ।
पानी में जीवन या जीवन में पानी है;
ना मानो तो पानी एक बेरंग कहानी है ।
पानी जीवन या जीवन में पानी है;
पानी मे जीवन या जीवन मे पानी है ।
कदम रखा धरती पर लेकर आँखो में पानी ,
दिया सबने दुख फिर भी रहा सिर्फ आँखो में पानी;
पानी में जीवन या जीवन में पानी है ।
दुःख हो जीवन में या हो सुख का अनुभव ,
साथ हमेशा देता है ये पानी ,
पानी में जीवन या जीवन में पानी है
पानी तो जीवन देता है ;
और यही पानी जीवन भी जीना सिखाता है ।
जियों सरल पानी जैसे ,
बोलों सरल पानी जैसे ,
पानी है जीवन
पानी से ही है जीवन
प्यासा मर जाए बिन पानी ;
फिर ना समझे कोई मतलब इस पानी का ?
अरे मित्रों समझो महत्व इस पानी का ,
जो ना रहेगा पानी , असितत्व मिट जाएगा
मानवजाति का ।
अंततः, पानी ही जीवन ,
ना रहे पानी , तो कैसे रहे जीवन ।

अस्तित्व मिट जाति

अमृता एम भैसणे
द्वितीय वर्ष बी फार्म

A Little Lyrical

Enriching souls

तुच तुझा घडविता

जीवनात असे प्रसंग येतील ,
जे वाट्याला निराशा देऊन जातील
मन डुबले दुःखाच्या सागरात ,
काळाकुट्ट अंधार येईल जीवनात ,
वाटेल जीवनात आता काहीच उरले नाही
अशावेळी तू घाबरू नकोस , निराश होऊ नकोस
विश्वास ठेव स्वतःवर
मन शांत ठेऊन तू जरा विचार कर ,
अपयश हिच यशाची पहिली पायरी खरोखर ,
बिकट मार्ग आहे म्हणून कधीच थांबू नकोस ,
धैर्य आहे तुझ्यात इतके की
जे तू इच्छशील ते तुला मिळेल ,
मेहनत करण्याची सदैव तयारी ठेवशील तर
नक्कीच तुला यश मिळेल.
मनात आशा असू दे नव्या स्वप्नांची ,
उरात जिद्द ते पूर्ण करण्याची ,
मग पाहशील तुझे स्वप्न पूर्ण होताना
कारण तुच आहेस तुझे जीवन घडविणारा.

प्रविण बिज्जा/ संकल्प घरत
तृतीय वर्ष बी फार्म

कधी वाटते.

कधी वाटते फक्त हसावे ,
कधी वाटते फक्त रडावे ,

कधी वाटते जगणे एक भावना ,
कधी वाटते जगणे हिच खरी संवेदना ,

कधी वाटते आपल्यासोबत आपले कोणतरी हवे ,
कधी वाटते आपल्यांपेक्षा परकेच बरे!,

कधी वाटते फक्त भावना व्यक्त कराव्यात ,
कधी वाटते कोणीतरी त्या स्वतःहून समजून घ्याव्यात,

कधी वाटते मैत्री म्हणजे सौख्य ,
कधी वाटते मैत्री म्हणजे दुःख ,

कधी वाटते कुणावर तरी प्रेम करावे,
कधी वाटते जीवन कोणावर उधळून टाकावे ,
कधी वाटते ''पैसा''हेच जीवन
कधी वाटते ''मुल्य''हेच जीवन

कधी वाटते दुःख कशाला ?
अहो, हवीच तर दुःख आपले जीवन कळायला.....
हेच तर आपले आयुष्य असते ,
जे आपल्याला मृगजळाप्रमाणे असते.

प्रविण बिज्जा/ संकल्प घरत
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जल और जीवन

पानी रे पानी ,कैसी तेरी कहानी,
कही तू नीला कही तू धानी ....
रंग बदलता तू हर जगह ,
है तेरी धारा सयानी ,
जहाँ जाती वहाँ करती ये
अपनी मनमानी...

ये जानकर तुझे होगी हैरानी,
कि कुछ ऐसी ही है हमारी जिंदगानी....
बचपन मै होती हे हरकते बचकानी,
जवानी कि होती है एक अलग ही कारस्तानी....
जिंदगी के रंगो के किस्से सुनाती नानी ,
जीवन के सूर,ताल पर साँसों की रवानी...
अलग,अलग है धरती पर प्राणी,
जिनकी बात पर बदल जाती है वानी.....
वानी की महिमा जिसने है जानी,

उसकी महिमा सबने बखानी जिंदगी है पानी,
फिर भी आते यहाँ सैतानी...
कितने हसी लम्हे, कितनी है परेशानी,
यह तो है एक खट्टी,मिट्टी खुबानी
कितनी गलिंयाँ,कितनी नादानी,
फिर भी हे यह जिंदगी कितनी सुहानी .....

एक सी हे जीवन और पानी की कहानी
जिंदगी रूठ जाय तो ढाती है कहर और

पानी जो ढात कहर तो आती है सुनामी .....

पुजा दुबे
तृतीय वर्ष बी फार्म

तुझ्या वाचून

कातर वेळी तुझी खुप आठवण येते
दूर असूनी तु खुप जवळ वाटतेस
हे अस का होत माझ मलाच समजत नाही
विसरण्याचा कितीही प्रयत्न केला
तरी तुझी आठवण आल्या शिवाय रहात नाही,

अस वाटत मनातली गोष्ट तुला सांगितली असती.
तर खूप बरं झाल असत.

होतीस माझ्या सोबत तेंव्हा सांगितले नाही म्हणून रडतो आहे.
तु पुन्हा भेटावी म्हणून क्षणोक्षणी प्रार्थना करतो.
तु होतीस सोबत तेंव्हा बघितल नाही,बोललो सुध्दा नाही.
तु सोबत असतांना

आता मात्र दूर गेल्यावर तुझी किंमत कळते
तुला बघण्यासाठी,बोलण्यासाठी बैचेन होतो
नजरेने बोलण्याचा प्रयत्न केला,
होतीस माझ्यासाठी तू सर्व
तुला कधी कळलेच नाही.
तुझ्या मनात काय वाटते कधी कळलेच नाही.
जगतो आहे राना सारखा तुझ्यावीना
पेटलेल्या वणव्या प्रमाणे तुझ्यावाचून
येशील तु कधी तरी ह्या आशेवर
बैचेन होतो तुझ्यावीना

यशवंत मळोदे
द्वितीय वर्ष एम फार्म

जल ही जीवन है

मैं जल कुछ कहना चाहता हूँ आपसे
अपनी तकलीफों को बयाँ करना चाहता हूँ आपसे,
युँ तो मैं बेजुबान हूँ रूबरू करना चाहता हूँ
आप की गलतियोंसे होनेवाली तकलिफों को आपसे
मेरी जिंदगी का भी एक किस्सा हूँ मैं ,

आखिर आपके जीवन का एक किस्सा हूँ मे,
जिस तरह हैती है आपको तकलीफ जब आप को कोई use करे,
उसी तरह होती हैं मुझे भी तकलीफ जब कोई मेरा Misuse करे,
आप की हर जरूरतों के काम आता हूँ मैं,

प्यासे की प्यास बुझाता हूँ मैं,भुखे को कुछ समय की ही राहत
दिलाता हूँ मैं बदसुरती से खुबसुरती बनाने काम आता हूँ मैं ,
भगवान की पुजा हो या खाने तक काम आता हूँ मैं ,
आपके जीवन से मृत्यू तक साथ निभाता हूँ मैं ,
बावजूत आप मेरे काम आ ना सके कभी,
बल्कि मेरी खुबसुरती बिघाडते रहे सभी
बस जरूरतो से जादा इस्तमाल करते रहे सभी
मै भी आप के जीवन का एक हिस्सा हूँ
पता नही आप समझ पाओगे कभी
आपके जीवन का आधार हूँ मैं

मुझ से चलता ये संसारऑक्सिजन ,हायड्रोजन
का मझ मे है भंडार,जीव-जंतु पशु-पक्षी का भी हूँ मैं पालनहार,
मुझे बचाऔ नही तो अगली पीढी को होगा कष्ट,
नही तो वो दिन दूर नही
ये संसार होगा नष्ट

सुनील गोस्वामी/अभिजीत सोनावणे
द्वितीय वर्ष एम.फार्म

Love Story in Chemistry Lab

ना ये Chemistry होती, ना Student होता
ना ये Lab होती ,ना होते Accident
अभी Practical मे नजर छाई एक लडकी
सुंदर थी नाक उसकी Test tube जैसी,
बातो में उसकी Glucose की मिठास थी
सासों में Ether की खुशबू भी साथ थी,
आंखों मे झलकता था,कुछ इस तरह प्यार
बिन पिये ही हो जाता था Ethanol का खुमार,
नजरे मिली Reaction हुआ,
कुछ इस तरह Love का Production हुआ
जब उसके Daddy से हमारी Introduction हूई
सुनकर हमारी बात वो ऐसे उछल पडे
Ignition Tubeमे जैसे Sodium भडक उठे
वो बोले, होश मे आओ,पेहचानो अपनी औकात
Iron कभी मिल नही सकता Gold के साथ
ये सुनकर तुटा हमारा अरमानो भरा Beaker
और हम चूप रहे Picric Acid का कडवा घूट पिकर
अब उसकी यादों के सीवा हमारा काम न चलता था
और Lab मे हमारे दिल के सिवा कुछ जलता न था,
जिंदगी हो गयी Unsaturated Hydrocarbon की तरह
और हम फिरते है, आवारा Free Hydrogen की तरह

यशवंत मळोदे
द्वितीय वर्ष एम फार्म

खामोशी

खामोशी भी एक अजीब चीज है ,
एक अनसुलझा quiz है ....
तन्हाई की वजह, तन्हाई की साथी
खामोशी ऐसी ही चीज है .....
कभी बढा दे परेशानी ,
तो कभी टेन्शन release है,
खामोशी ऐसी ही चीज है
जब जनता करें तुम पर चिड-चिड
और कह दे की तू एक नाचीज है ,
उस बहस मे जो काम आए,
खामोशी वही चीज है .....
जब मन हो अशांत और तुम
करना चाहो उसे शांत ,
यह वही थंडी breeze है.
खामोशी वही चीज है,
काम्पीटिशन मे जो दुसरो से
तुम्हे अलग बनाए यही वह crease है ,
खामोशी ऐसी ही चीज है,
प्यार के इशारो से कर दे बयान
तो खुशीयों के trees है,
और अगर कोई अपना रूठ जाए
तो आसुओं की dreeze है,
खामोशी ऐसी ही चीज है
अगर चाहते हूए ना मिले
यह खामोशी तो पागल बना दे,
अगर चाहते हूए भी मिल जाय
तो लाइफ मे सब कुछ मुफ्त है

पुजा दुबे
तृतीय वर्ष बी फार्म

आठवण

हरवलेले हे दिवस
येतील का पुन्हा ....
जगतो आज आणि उद्या
हाच दिवस जुना ...
नशीबानेच एकदा ,
पुन्हा कोठे भेटू ....
आठवणीला एकदा ,
एकत्र मिळून वेचू ...

पण तेंव्हा सर्व काही
बदललं असेल,

कोणी तरी बोलवतय
म्हणून भेट लवकर सुटेल .....

लांब पर्यन्त चालणा-या
गप्पा-गोष्टी राहणार नाही ,

आठवणींचा हाच झरा मग
त्या दिशेने वाहणार नाही ....

आज सोबत आहात तुम्ही ....
वाटेल, जगू द्या,
जीवन भर पूरतील अशा,
आठवणी जपून ठेवा...

आज मी नसते,
त्या आठवणी मध्ये तरी ....

मला एक आठवण म्हणून,
स्मरणात नेहमी असू द्या....

अनघा सोनावणे
तृतीय वर्ष बी फार्म

Mr. Aniket Narkar

Ms. Vrushali Keer

Ms. Vrushali Keer

Ms. Vrushali Keer

Mr. Aniket Narkar

Mr. Aniket Narkar

Clicks and Flicks

Capture!

Ms. Shivani Gangar

Ms. Shivani Gangar

Ms. Shivani Gangar

Ms. Shivani Gangar

Ms. Shivani Gangar

Ms. Vrushali Keer

Clicks and Flicks

Capture!

Ms. Vrushali Keer

Ms. Munira Loliwala

Ms. Munira Loliwala

Ms. Shivani Gangar

Page 3 Glitz and Glamour

Final Year B Pharm

Final Year M Pharm

Non-Teaching Staff

1st row (L to R) – Mr. Gurunath Pednekar, Mr. Sunil Mohite, Mrs. Manasi Vaidya, Dr.(Mrs.) Abha Doshi, Dr. U.B. Hadkar, Mrs. Priya Sawant, Mrs. Manisha Barve, Mrs. Asavari Hadkar.
2nd row (L to R) – Mr. Pramod Pawar, Mr. Pradeep Jadhav, Mr. Mahendra Surve, Mr. Pramod Karbhari, Mr. Ajay Mali, Mr. Dattaram Bhure, Mr. Sanjay Katkar.
3rd row (L to R) – Mr. Yuvraj Thackre, Mr. Sanjay Palav, Mr. Prashant Rane, Mr. Sudhir Ayare.

IPA Student Cell Members

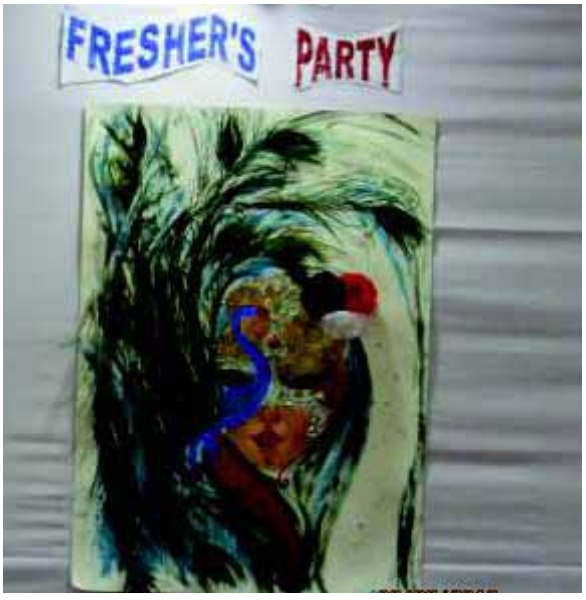
L to R – Mr. Ujjwal Yadav, Mr. Rahul Lad, Ms. Neha Karekar, Ms. Ankita Jadhav.

A Cut Above the Rest

A Cut Above the Rest

A Cut Above the Rest

A Cut Above the Rest



Special Thanks To

Mr. J.G.Irani, Mr. Ashish Shrivastava, Mr. Pravin Gangan, Mr. Pranav Govekar, Ms. Mona Patel
Dr(Mrs)Vijaya Patil
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Mrs. Asavari Hadkar
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Mr. Milind Damle
Ms. Saniya Malim (ex-student)
Ms. Avani Gosalia (Final Y B Pharm)
Mr. Mustafa Mithaiwala (Final Y B Pharm)
Ms. Bhavini Panchal (T Y B Pharm)
Mr. Sankalp Gharat (T Y B Pharm)
Mr. Rohan Dhumatkar (T Y B Pharm)
Mr. Sham Patil (T Y B Pharm)
Mr. Vishal Patil (T Y B Pharm)

Last but not the least, our cultural in-charges Dr.(Mrs.) Radhika Raheja and Dr (Mrs.). Vaishali Dixit and the entire student council for their never ending support.

MUMBAI EDUCATIONAL TRUST
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