

# The Nest

Nurturing sharp minds



PROGRAMMING THE FUTURE OF PHARMA EDUSYSTEMS

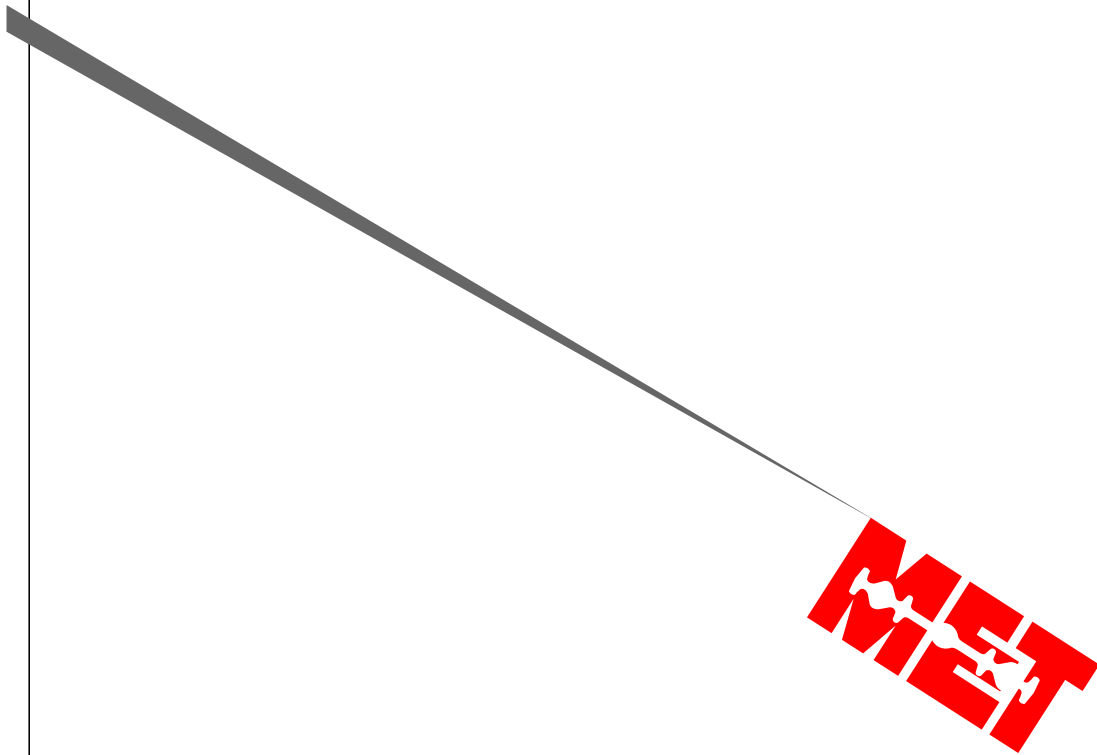


विद्याधनं सर्वधनं प्रधानम् ।

MET Institute of Pharmacy  
A Student Council Presentation  
2011 - 2012

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.

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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



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 Trichology

- 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.

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 the all-round personality development effort at the institute and the positive impact of the student community.

I hope and pray that our students continue to excel both in professional and co-curricular fields and get the due recognition as dynamic members of society.

# The Director Speaks



**Dr. U. B. Hadkar**  
**Director, MET IOP**

This year our long cherished desire to start M.Pharm.Sc. Course was fulfilled. We have started M.Pharm.Sc. (Quality Assurance) programme this academic year (2011-12). Thanks to the initiative and efforts put in by Principal Dr. Mrs. Abha Doshi and our teaching staff.

As regards to academic activities, I am pleased to state that we had university topper at the Third Year B.Pharm. Sem. VI, (academic year 2010-11), Ms. Saniya Malim. She was also the university topper at the Sem.VII (academic year 2011-12). We are encouraging our teachers to attend seminar, workshops and conferences to upgrade their knowledge. Mrs. Sushma Gokhale, Mrs. Vaishali Malvankar, Mrs. Neha Barfiwala, Mrs. Abhilasha Sharma, Mrs. Kiran Dube and Mrs. Deepali Khabale have attended seminars during the academic year 2011-12. Mrs. Vaishali Dixit, Mrs. Sheeja Koliyote, Mrs. Poonam Advani, Mrs. Vijaya Patil, Mrs. Rashmi Srivastava, Ms. Nikita Dhruv have attended Quality Improvement Programme at BCP, Kalina. Our faculty member Mrs. Raheja was awarded first prize for her research paper presented at the "Avishkar". Some of our teachers are pursuing Ph.D. Programme. Mrs. Vijaya Patil has completed her Ph.D. Principal Bhosale has already submitted his Ph.D. thesis. Mrs. Radhika Raheja will soon submit her thesis. Mrs. Poonam Advani & Mrs. Bhagyashree Joshi have registered for Ph.D. programme.

We are doing very well on the cultural front as well. This year we have won the MET Vikram Sports trophy which was introduced for the first time at MET UTSAV.

I am extremely happy to state that Ms. Saniya Malim was adjudged the "Best Student" for the academic year 2011-12 at the Rx festival. Fashion show trophy was also won by MET IOP. Ms. Rajani, Himani, Hafsa bagged the first prize at the Tech-fest organised by UICT, Matunga.

I take this opportunity to thank our trustees profusely for the support and encouragement. I also thank J. G. Irani and the students on the editorial board Mr. Mustafa, Abhishek, Raj, Rohan and Ms. Avani, Mamta and Madhuri for taking immense pain to bring out this issue of our magazine 'The Nest'.

Let us learn from our beloved trustees "थांबला तो संपला, धावत्याला शक्ती येई आणि रस्ता सापडे"



# From the Principal's Desk



**Dr. Abha Doshi**  
Principal,  
MET IOP (Degree)

The New Year dawned with its hopes and aspirations that this year would give us the opportunity to learn and explore new avenues. On the extracurricular front, this year started with Rx festival followed by MET UTSAV. At Rx Festival we did our best and won various events including 'Best Fashion Show' award. Our students also won in 'Tech Fest' organised by IPA. MET secured the first positions in poster presentation, paper presentation and model making. I congratulate all the students for their participation and hard work.

In MET UTSAV, the sports day was a 'HIT'. The students and staff from MET IOP participated in all events and won in most of the events and were rewarded with the rolling trophy 'MET VIKRAM'.

On the curricular front, the academic year 2011-12 has been very important for MET IOP since we have started M.Pharm.Sc. course in Quality Assurance. We believe that quality research could play a key role in putting India on the world map.

Globalisation policies could not only have a positive but also a negative impact on Indian economy as exemplified by flooding of Chinese goods in the Indian market. We Indians can make use of liberal policies of government and with our research we can help India become economically empowered.

Our intelligence and hard work could reap benefits not only personal, but also for our country. So, dear students work hard and strive to be the best in your field.



**Mr. S. D. Bhosale**  
Principal,  
MET IOP (Diploma)

It gives me a great pleasure while writing this message for The NEST. The NEST is always an excellent compilation of various forms of literature, contributed by the students and faculties.

The year 2011-12 is marked with various socio-economical, political and scientific events, but among all these, the important one for pharmacists is the emergence in the cases of Totally Drug Resistant Tuberculosis (TDR-TB), and the news related to polio eradication. Although effective treatment is available for Tuberculosis, the drug treatment has been hampered due to development of resistance by microbes. One of the reasons for this is irrational use of antibiotics and failure on part of the patient to consume the total dose of prescribed medicines. In this regard a Community Pharmacist who is the true Drug Expert and a link between the doctors and the patients (end users) can play a very crucial role by effective counseling of patients with respect to consumption of medicines and Do's and Don'ts with medicines.

Although India is considered as the major manufacturer of medicines, unfortunately, we as pharmacist are failing to guide the community in terms of effective usages of drugs and prevention of untoward incidences occurring after improper consumption of medicines.

Recent reports suggest that India is progressing fast towards the eradication of polio so that no child will ever know the crippling effects of polio.

Thus, a community pharmacist can play a very important role in control and prevention of various communicable and life style diseases, by informing and educating the people about health and making them participate in various National Health Programs. Ethical practice and generous service to community would certainly help us to raise our status as a part of health care team.

MET recently celebrated MET UTSAV 2012 with great zeal and it was a memorable time for all the students and faculty, in which all the institutes participated. The festival was celebrated with superb sportsmanship and great understanding, without any barrier of departments, making everybody proud to be part of MET family.

I hope this issue of THE NEST, would also be an excellent piece of work. I wish all the best to the editorial committee of Degree/Diploma.

All the Best, Thank You.

# Our Benevolent Educators

## Degree



1st row (L to R) - Mrs. Radhika Raheja, Dr. Vijaya Patil, Ms. Vrushali Keer, Mrs. Poonam Advani, Ms. Nikita Dhruv, Mrs. Sheeja Koliyote.  
2nd row (L to R) - Ms. Sindhu Nair, Ms. Ujas Patel, Dr. Vaishali Dixit, Mrs. Navneet Vinayak, Dr. Abha Doshi, Dr. U. B. Hadkar, Mrs. Bhagyashree Joshi, Dr. Rashmi Srivastava, Dr. Sonali Naik.

## Diploma



(L to R) - Mrs. Deepali Khabale, Mrs. Abhilasha Sharma, Mrs. Kiran Dube, Mr. S. D. Bhosale, Dr. U. B. Hadkar, Mrs. Sushama Gokhale, Mrs. Vaishali Malvankar, Mrs. Neha Burfiwala.

# From the Cultural In-Charge

We the Cultural In-Charges of MET IOP congratulate you on completing a successful journey of vibrant cultural events with an enthusiasm worth remembering. We appreciate your hard work and dedication in each and every event held at the MET IOP family be it the enthralling Nag Panchmi or the extravagant Rx festival, soulful Dindi procession or the devotion to celebrate Guru Purnima. We truly appreciate the colors you added to our very own MET UTSAV by your proactive participation. We hope that you will continue the same in future and bring laurels to the institution. Regardless of the fact that you could not win the Rx trophy, we sincerely appreciate your diligent efforts in putting the best of your abilities. We all have trials to face and dragons to slay but it is more important that we should continuously strive to reach our goals. We would like to express our gratitude to our Board of Trustees for their continuous support. We would also like to thank all the members of the cultural team for their timely support in making all the events a great success.

## The Cultural In-Charges

Dr. Vijaya Patil  
Mrs. Aushima Dahotre  
Mrs. Navneet Vinayak  
Mrs. Deepali Khabale

---

## The Council Talks

In the beginning of this academic year, a few creative minds came together to form our very own council. With this began a new journey to explore the undiscovered path with a different approach but aiming towards the same destination- EXCELLENCE

As the year progressed we had our share of ups and downs but we worked with intention, 'in spite of the odds being against you. Keep working hard and persevere'. Every campus and off campus event was well organized and it brought the working team together

We sincerely thank Dr. Vijaya Patil, Mrs. Aushima Dhature, Mrs. Navneet Vinayak and Mrs. Deepali Khabale, our cultural in-charges, who have supported, guided, cheered up and with us every second. We are also grateful to Dr. Hadkar, Dr. Abha Doshi, Mr. Bhosale and all our dear teachers who have always helped and supported us.

As this year comes to an end, we have realized that the important moments in life are not the advertised ones; the real milestones are less prepossessing. It's not the great things, but the small things done in a great way which makes us distinct.

All of us share the same feeling that the lessons we have learnt here are for the bigger examination called life. This year we've had millions of experiences, some may be bad ones but some have been the best of our lives. However be the experience, they taught us a lesson and at the end of it we end up as every METizen likes it, "Razor Sharp."

Thank You,  
The Student Council

# Editorial

'The Nest' which is published every year enlightens us on the journey of MET IOP throughout the academic year in a nutshell.

The editorial committee has made a compilation to showcase the great talents that we healthcare professionals possess in various other fields may it be music, dance, literary works or skilful art!

What's new in this year's Nest? In this year's Nest we have brought to light the current scenario of the Pharmacy Education trends in our country and latest Pharmaceutical Technological advancements taking place all over the globe.

The job of an editor is never easy but we are passionate about working for the Nest and putting in our united efforts as a team is what made this an enjoyable experience.

A special thanks to Dr. Ajit Nair, Ashay Shah, Tanvi Joshi, Mansi Shende and Kaushal Kothari for giving their valuable inputs for our theme-based articles.

Last but not the least a big THANK YOU to Mr. J. G. Irani, Mr. Ashish Shrivastava and the entire Marcom team which is instrumental to the building up of the Nest year after year.

About the cover- This year we have chosen the theme 'Pharmacy Education and Technology' which we have sincerely tried to depict by the cover page. The robotic hand symbolises the 'hand of technology' in relation to the continuous progress of the Pharmacy Education system and Pharmaceutical Industry.

The dark side of the hand tells us how gradually technology has emerged and changed all aspects of pharmaceuticals and the bright side of the hands conveys the message that at present pharmacy is ever developing and its creating newer horizons. The half-hatched egg represents us pharmacists who are nurtured by the 'Nest of technology' and finally the hand reaching out towards the blue sky refers to the vast scope of our profession and inspires us since 'The Sky is the limit'!!

Happy Reading Folks!

## **The Editorial Committee**

Mustafa Mithaiwala (T.Y.B.Pharm.)

Avani Gosalia (T.Y.B.Pharm.)

Abhishek Nair (S.Y.B.Pharm.)

Mamta Choudhary (S.Y.D.Pharm.)

Rohan Dhumatkar (S.Y.D.Pharm.)

Madhuri Kharade (F.Y.D.Pharm.)

Raj Gosar (F.Y.D.Pharm.)

# The Student Council

## Degree

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Pooja Dhargalkar (T.Y.B.Pharm.)

### Cultural Secretaries

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Anagha Sonawane (S.Y.B.Pharm.)

### Sports Secretaries

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Mihir Patwardhan (S.Y.B.Pharm.)

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Krupa Thakkar (Final Y.B.Pharm.)  
Rhythm Mitra (T.Y.B.Pharm.)  
Nikita D'souza (T.Y.B.Pharm.)  
Priyanka Lonandkar (S.Y.B.Pharm.)  
Afreen Khan (S.Y.B. Pharm.)  
Ujjawal Yadav (F.Y.B.Pharm.)  
Hely Desai (F.Y.B.Pharm.)

### M. Pharm. Sc. Class Representatives

Suruchi Sharma

## Diploma

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### Cultural Secretaries

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Dheeraj Dubey (F.Y.D.Pharm.)

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Ritesh Waghmare (F.Y.D.Pharm.)

### Ladies Representatives

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Pooja Satar (F.Y.D.Pharm.)

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Amir Ali (S.Y.D.Pharm.)  
Chirag Pendarkar (F.Y.D.Pharm.)  
Ronny Fernandes (F.Y.D.Pharm.)



# The Student Council

## Degree



## Diploma





# Rx Overview

Pursue, persevere, perform!





Rx is the annual technical and cultural festival organized by the This year it was held at the Bombay College of Pharmacy, Kalina during 13-15th of January 2012. This year IPA made efforts to rope in the Pharmacy College from Pune as well. As soon as the university exams got over MET once again geared with full enthusiasm and started preparing for the various events which were part of the festival .The Sports events started from bowling on the 23rd December 2011 and then concluded with badminton on the 10th January 2012. MET was victorious in the carom single and full team event. The tradition of winning TT is becoming a legacy for MET. Controversies surrounded Box cricket, Cricket at the oval maiden only portrayed the true sportsmanship MET possesses. Sham Patil made it very clear that he is the true athlete. He won Long jump, 100 meter race with other competitors. As soon as the university exams got over MET once again geared with full enthusiasm and started preparing for the various events which are the part of the festival. The Tech Fest is a Hit with METites. From an overall 15 models from 18 different colleges, MET had presented 5 working models portraying its academic forte and top it all the best model was from our institute. The only poster presented this year emerged victorious and MET secured 2nd place in paper presentation. Indeed a very impressive performance. The Cultural events bring out the best from METites. This becomes apparent with MET bagging the 1st prize for the Fashion Show. Consistency The sense of pride is escalating. Although the dance troop couldn't win it this time but their smiling faces while performing defined the true meaning of enjoying a festival. MET did not win the Rx festival this

year which doesn't sadden us 1 bit! The intricacies are best understood by the council and few IPA cell members of MET. The full, Nest we feel would be inadequate to tell the stories of this memorable Rx 2012. We win or lose both have equal probability. But every battle of life need not be won. Sometimes losing makes you stronger then you were when you were the best. There were lessons learned, we worked hard, we enjoyed the festival and that's how we do it.

### **Sports:**

#### **Winners of Table Tennis:**

Nivant Waghmode (Final Y.B.Pharm)  
Anish Gomatam (T.Y.B.Pharm)  
Chirag Thakkar (T.Y.B.Pharm)  
Rohan Awate (S.Y.B.Pharm)  
Deepali Desle (Final Y.B.Pharm)  
Avani Gosali (T.Y.B.Pharm)  
Pooja Goradia (T.Y.B.Pharm)

#### **Winners of Carom:**

Annashaeb Patil (Final Y.B.Pharm)  
Ameer Shaikh (Final Y.B.Pharm)  
Manjeet Patil (Final Y.B.Pharm)  
Amol Rakamutha (Final Y.B.Pharm)  
Rajani Manohar (Final Y.B.Pharm)  
Himani Raut (Final Y.B.Pharm)  
Shraddha Redij (S.Y.B.Pharm)  
Ashwini Hariharan (Final Y.B.Pharm)

#### **Winners of Athletics (1st in 100 meter race and Long jump):**

Shyam Patil (S.Y.B.Pharm)

#### **1st Runners up of Pool:**

Avani Gosalia (T.Y.B.Pharm)

#### **Best Student Of The Year:**

Saniya Malim (Final Year B. Pharm.)

### **Tech Fest:**

#### **Winners of Model Making:**

Pranita Dharmadhikari (T.Y.B.Pharm)  
Madhura Chaudhari (T.Y.B.Pharm)  
Mayuri Avhad (T.Y.B.Pharm)  
Winners of Poster Presentation:  
Mustafa Mithaiwala (T.Y.B.Pharm)  
Rakhi Modak (T.Y.B.Pharm)

Hetuk Shah (S.Y.B.Pharm)

#### **1st Runners Up in Paper Presentation:**

Zarina D'costa (Final Y.B.Pharm)  
Tanvi Kanekar (Final Y.B.Pharm)  
Namita Hegde (Final Y.B.Pharm)

### **Cultural:**

#### **Winners Of Fashion Show:**

Prasanna Yengunde (Final Year.B.Pharm)  
Raj Desai (T.Y.B.Pharm)  
Pooja Dhargalkar (T.Y.B.Pharm)  
Manali Kadam (T.Y.B.Pharm)  
Chabildas Malankiya (T.Y.B.Pharm)  
Mustafa Mithaiwala (T.Y.B.Pharm)  
Rakhi Modak (T.Y.B.Pharm)  
Nikita Shah (T.Y.B.Pharm)  
Mandar Valavalkar (T.Y.B.Pharm)  
Tejas Pawar (S.Y.B.Pharm)  
Hetuk Shah (S.Y.B.Pharm)  
Shraddha Shah (S.Y.B.Pharm)  
Manasi Laud (F.Y.B.Pharm.)

#### **First Runners Up In Mono Acting:**

Vinod Mankumare (Final Y.B.Pharm)

#### **First Runners Up In Personality Contest:**

Krupa Thakkar (Final Y.B.Pharm)

#### **First Runners Up In Spin-a-yarn:**

Krupa Thakkar (Final Y.B.Pharm)  
Avani Gosalia (T.Y.B.Pharm)  
Rhythm Mitra (T.Y.B.Pharm)

#### **First Runners Up In Movie Making:**

Mustafa Mithaiwala (T.Y.B.Pharm)  
Mihir Patwardhan (S.Y.B.Pharm)

#### **Second Runners Up In Photography:**

Mandar Valavalkar (T.Y.B.Pharm)

#### **Second Runners Up In Venue Decoration:**

Ruchi Daptardar (T.Y.B.Pharm)  
Neha Karekar (T.Y.B.Pharm)  
Swapnaja Shinde (T.Y.B.Pharm)  
Pranav Shirkar (T.Y.B.Pharm)  
Swamini Bhogale (F.Y.B.Pharm)  
Ujjawal Yadav (F.Y.B.Pharm)  
Shreya Mhatre (F.Y.B.Pharm)

Note: The results for few events of the 2nd day of Rx are awaited.



MET IOP can perfectly exemplify the words of Mahatma Gandhi. Since education is a potential instrument of man-making and social engineering, he concentrated on an education that could draw out the best in the child-body, mind and spirit. Education should not only enhance the academic knowledge but also caters to the all-round development of an individual! Here at MET IOP students are moulded and nurtured to grow in every aspect of life. There is a wide variety of events that keep us busy all year around- including educational Guest Lectures, seminars and fun-filled extra-curricular activities!!

**Aashadi Ekadashi:** The academic year of 2011-2012 was incepted by invoking the blessings of Lord Vitthal and his wife Rakhumae to celebrate Aashadi Ekadashi. On 11th July 2011, the 'Dindi' was attended by the students, teaching staff and non-teaching staff members of MET IOP. The Dindi was carried out from Bandstand to our college campus. The sound of 'Lezhim' and 'Zhanj' was resonating in the air along with the rhythmic footsteps of the dancers. Spirits were high, smiles all around, as the air was filled with the chants of everyone praising the Almighty! After returning to the college, the 'Aarti' was carried out. The event was concluded with the distribution of 'Prasad'. A special thanks to our director Dr. U.B. Hadkar who not only leads us, but also enthuses each one of us to take keen interest and participate in every little thing that we do with gusto and zeal.



**Staff Picnic:** On 22nd July 2011, the MET IOP staff visited Malshej Ghat! They thoroughly enjoyed their visit to this scenic location and described it to us as 'The Indian Switzerland'. It was truly a blissful experience for all the teachers to visit this scenic location in the monsoons. On that cloudy day they felt like they were in heaven! Not just the teachers and non teaching staff but also their children had a wonderful time together. The staff picnic proved to be the perfect get away for the teachers who have such a gruelling rigorous schedule all through the year!



**Nag Panchami:** On the auspicious day of Nag Panchami on 4th August 2011, all students and teachers offered their prayers to 'Nag Devta' by conducting an Aarti and giving Prasad to one and all. A multi-coloured vibrant Rangoli was made by the creative students of MET IOP. This year the celebrations were raised to a higher level because Chinmay Joshi and Rushil Bhatt demonstrated a small 'Snake Show' and gave a short presentation to all the teachers and students. The presentation had attention-grabbing illustrations and details based on the diversity of snake species seen in India. They clarified numerous myths that people have regarding snakes and also explained various interesting facts about them.



**Satyanarayan Pooja:** On 12th August 2011, Satyanarayan Pooja was performed by the members of MET IOP and delicious lunch was served to all the students as well as staff in the traditional style of a 'pangat'.



**Independence Day:** On 15th August 2011, we celebrated Independence Day. The national flag was hoisted by our trustees and the Chief Guest followed by the National Anthem sung by our Council members. The kids of MET Rishikul put up an entertaining performance on the beats of 'Rang de Basanti'. Their dance was very lively and it raised the spirits of all the spectators causing an upsurge of patriotic feelings in each of their hearts. Mr. Vinay Mandke sang a touching patriotic song to gracefully end this joyous occasion.



**Mangala Gauri:** Mangala Gauri is celebrated all over Maharashtra by newly married brides on every Tuesday in the month of Shravan. On 20th August 2011, all the teachers and students of MET IOP danced together merrily and played games like 'fugdi' and 'zimma' in the Convention Centre. As per the traditional ritual, all the teachers recited 'ukhane' which are sets of 2-3 poetic lines to describe their husbands and this brought in smiles galore from everyone around!



**Blood Donation Camp:** On 24th of August 2011, a blood donation campaign was held at the MET campus. It was executed with the help of Sarvodaya Hospital Samarpan Blood Bank. People from all the departments participated in this noble cause of blood donation. Around 78 bottles of blood were collected.



**AIDS Awareness Rally:** On 26th August 2011, the AIDS awareness rally was organised by the IPA with the help of the members of the Shiv Shakti Mitra Mandal in Kurla. The students of MET IOP performed a street play in Hindi so that all the spectators that gathered to watch could understand with ease. The second AIDS awareness campaign was carried out on the 24th December 2011. The students distributed posters to the various shopkeepers in Bandra. These shopkeepers displayed the posters in their shops such that they could help the students spread the awareness.





**Freshers' Party (Degree and M.Pharm.Sc.):** On 3rd September 2011, our yearly tradition of welcoming the newbies into the World of Pharmacy and into this renowned institution by throwing a Freshers' Party was continued in style. The theme for the Freshers' party was Angels & Demons. This year we greeted the students of both B. Pharm. (Degree) and M.Pharm, a newly introduced course. The evening commenced with speeches by the Authorities. The freshers put up a variety of performances and there were several one minute games organised by the Student Council for all the students and teachers. The Question and Answer Round for the Mr. and Ms. Fresher Event was interactive and helped the teachers and students get to know the newcomers better. Everybody thoroughly enjoyed the party which was brought to an end with a jam session.



**Teacher's day (Degree):** Our teachers are not just our educators but they also play a major role in our overall development as responsible peace-loving individuals. They truly support us every step of the way and to thank them in our little way the Student Council (Degree) presented a token of our love and appreciation to all the teachers of MET IOP (Degree and Diploma) on 5th September 2011. A cake was cut to celebrate this day and Mustafa Mithaiwala and Avani Gosalia spoke a few words on behalf of the entire student fraternity to express their gratitude towards 'Our Dronacharyas'.



**Teacher's Day (Diploma):** 5th September 2011 - 'The purpose of education is to replace an empty mind with an open one.' A small thanksgiving celebration was organized by diploma students. The function was started with thanking speech by the student in the graceful presence of Mr. S. D. Bhosale, Dr. U. B. Hadkar and Dr. Abha Doshi.

**Freshers' Party (Diploma):** 15th September 2011: A Freshers Party was organized for the new faces of F.Y.D. Pharm. student by the S.Y.D. Pharm. It served as an opportunity for the newbies to interact with faculty members and seniors.

**Navratri:** On 1st October 2011, we celebrated Navratri with full enthusiasm and holy spirit in the stilt area of MET. The celebration started with 'Aarti' of Durga Maa which was graced by the presence of all members of MET IOP. Everyone was deeply involved in reciting prayers in unison to extol Ambe Maa. The 'Aarti' was followed by 'Garba' and 'Dandiya raas' played by all students and teachers with fervent vigour. This event was thoroughly enjoyed by the students and teachers alike.



**Tuberculosis Health Campaign:** On 21st October 2010, the students of MET IOP carried out a TB Health Campaign which was organised by the IPA. The students walked the streets of Mumbai with posters to spread awareness about the importance of cleanliness and hygiene. This would help all passersby and street kids to be more aware regarding the importance of maintaining cleanliness in their life and also be more protected from various infections and diseases resulting from poor hygiene habits.



**Picnic (Diploma):** 22nd Dec.2011:- A small one day trip was arranged for the students of D.Pharm. to 'The Great Escape'. Both students and teacher had the time of their lives!

**Hospital Visit (Diploma):** 24th December 2011:- A hospital visit for S.Y. D.Pharm was organized by Mrs. Sushma Gokhale and Mrs. Abhilasha Sharma at S. L. Raheja Hospital, Mahim where student were welcomed by Mrs. Manjiri Toraskar (In-charge of Pharmacy). The students got a chance to see the various departments of a hospital and understand their working procedures and functions.



**Days (Diploma):** Various days was celebrated by students of Diploma ,the days were followed by as such; Traditional Day, Winter day, Group similarity day, Black day, Tie day, Saree day. That week was ended with celebration of Makar Sankranti.

**Industrial visit (Diploma):** A small industrial visit was arranged for F.Y.D.Pharm at Manish Pharmaceutical, Govandi on 13th December 2011, where all students were exposed to Pharmaceutical machinery and industrial methods of manufacturing and gained practical knowledge about it.

**Republic Day:** Patriotic fervour ran through the blood of one and all present on 26th January 2011. The Chief Guests and Trustee Members hoisted the tricolour and the students of MET IOP sang the national anthem. The students had made a beautiful flower arrangement to decorate the venue and to celebrate this joyous occasion Vineet Dedhia and Prasanna Yengunde (Final Year B.Pharm.) and Aakash Goswamy (S.Y.D.Pharm.) sang patriotic songs and the students of Mass Media put up a dance performance.

**MET Utsav:** This is one time in the year when the students, staff and faculty members are on the same level. All the hierarchies are dissolved and everyone comes together with the sole objective of having pure fun.

On 25th January 2012, one and all enjoy interesting and innovative workshops that are carried out every year for all members of MET during this mega-event; the Salsa, Baking, Aroma Therapy, Handwriting Analysis workshops to name a few.

At the Talent Hunt, numerous members of the non-teaching staff and teaching staff were awarded the MET Bhushan for having served the institute for over 15 years.

Sports are always so rejuvenating and a wide range of sports are played during the MET Utsav Sports on 26th January 2012. This year the MET IOP was awarded the MET Vikram Sports Trophy since they bagged maximum points in the sports events.

On 27th January 2012, the cultural night of MET Utsav was organised on a grand scale and MET truly reminded you of the dazzling sheen seen on the ocean when flooded with gleaming sunlight. The students of MET IOP put on a power-packed performance on the folk dances of India. Aakruti Kaikini, one of our brilliant ex-students received the MET Ratna this year.



MET Vikram Sports Trophy



### **Picnic (Degree)**

On 11th February 2012, a one day picnic to 'Essel World' was arranged for the students of MET IOP. The picnic was a delightful experience for everybody!

### **Guest Lectures (Diploma)**

20th January 2012: A Guest Lecture on "Role of Pharmacists in Hospital" was conducted by Mrs. Manjiri Toraskar (B.Pharm, DHA), Incharge of Pharmacy of S.L.Raheja Hospital, Mahim, explaining the importance of a pharmacist in Health Care System of India.

31st January 2012: Prof. P. R. Pangam, Principal B.Sc. (MLT), All India Institute of Local Self Govt. Bandra, conducted a seminar on Anaemia & Thalassemia General Consideration. Elucidated how different blood diseases occur and method to preclude.

### **Guest Lectures (Degree)**

18th- 21st March 2011: Self-empowerment Workshop by Mrs. Najoo Sohonie (For Final Year B.Pharm.)

22nd -25th March 2011: Self-empowerment Workshop by Mrs. Najoo Sohonie (For Teachers of MET IOP)

10th August 2011: Medical Writing Career Opportunities by Dr. Namita Limaye ( Siro Clinpharm Research Ltd.)

8th February 2012: Atomic spectroscopy techniques based on plasma by Mr. Steve Barton, Kingston University, UK.

10th February 2012: New discoveries in Pharmacy fields by Dr. Michael Munday.

### **Seminar**

On the 4th February 2012, a seminar based on "The Perspectives in Clinical Research" was conducted by MET IOP in the Convention Centre. Several eminent personalities from well-established companies of the Pharma Industry came up to address the students. M.Pharm students from other colleges like LHH, College Of Pharmacy (Hiranandani) also attended the seminar. A special thanks to Dr. Vaishali Dixit and Mrs. Radhika Raheja who co-ordinated this remarkable event.

The first talk was based on 'Career options in clinical research' by Dr. Arun Bhatt.

Dr. Ajit Nair gave an excellent 'Overview of Clinical Development'.

Dr. Jitendra R. Dixit spoke about the ICH-GCP guidelines. He explained the importance of ensuring safe, effective and high quality medicines' development and registration in the most resource-efficient manner. He also explained the ethical principles involved in clinical trials and how the ultimate goal should be patient safety.

Dr. Rajesh Jain spoke about the 'Clinical Trial life cycle and Project Management Accountability'.



### **Achievements**

- Dr. Vaishali Dixit received a research grant from the University of Mumbai for research based on 'Evaluation of Anti-spasmodic activity of Indian Medicinal Plants and Some Herbal Formulations'
- Mrs. Vijaya Patil completed her Ph.D. this year. Her area of research was - 'Phytochemical Evaluations Of plant Extracts for their use in Skin Care Products'
- Ms. Sindhu Nair submitted manuscript of her research work- 'Isolation of a Cucurbitacin from Picrorhiza kurroa by Column Chromatography & its Characterization'. It was accepted and published in the July-September 2011 issue of the Research Journal of Pharmaceutical, Biological & Chemical Sciences.

### Toppers

#### F.Y.B.Pharm.

Dinesh Choudhary  
Bijal Dalal  
Soumya Chikermane

#### T.Y.B.Pharm.

Saniya Malim  
Yuga Maru  
Mansi Chawathe

#### F.Y.D.Pharm.

Vaibhav Gala  
Rohit Tripathi  
Tejaswi Pardule

#### S.Y.B.Pharm.

Nikita Shah  
Rhythm Mitra  
Devashree Mujumdar

#### Final Y.B.Pharm.

Aakruti Kaikini  
Neha Agre  
Nidhi Choudhary

#### S.Y.D.Pharm.

Ashok Choudhary  
Shehbaz Shaikh  
Mubina Shaikh

### Industrial Visit Report

On 17th December 2011, the Final year B.Pharm. students visited Ally Pharma Options for an industrial visit which was a fantastic learning experience.

Ally Pharma Options Pvt. Ltd. (APOPL) is a private limited firm established by first generation entrepreneurs in the year 2005. The company is engaged in the manufacture of non sterile dosage forms for export market.

The company has employed sufficient number of qualified and experienced technical staff for Production and Quality Control. Quality control lab is self sufficient to undertake analysis of all the incoming raw materials, finished products, and semi finished products and packing materials. APOPL carries out in-house IR, UV, and HPLC analysis as per pharmacopoeias. A well established and effective Quality Assurance System is in place to comply with cGMP guidelines. All Raw & Packing materials are procured from approved vendors. Periodic training is given to all the employees.

The entire staffs as well as workmen engaged in manufacturing activities are subjected to annual medical examination to ensure that all employees are free from Tuberculosis, skin and other communicable or contagious diseases. As per company policy, lint free factory uniforms and footwear are provided to all workmen and staff within factory premises. Company has also provided canteen for all employees.

It is well illuminated, has an efficient drainage system and all electrical fittings are concealed. An up to date Ventilation system is provided to take care of prevention of contamination and cross contamination. Ventilation system is designed to manufacture products under controlled condition and to provide comfort to the personnel working in the premises.

The Company possesses a rapid mixer granulator, fluid bed dryer for various steps in tablet manufacturing. Capsule manufacturing is done by automatic and semi automatic capsule filling machine. Liquid manufacturing is equipped to manufacture 5000L. Tablets and capsules are packed with the help of three blister packing machines. External preparation area is capable of production in batches of 750 kg. A color coding pattern is followed where in materials under test are labeled yellow, sampled- light blue, approved- green and those which are rejected are marked red which helps in easy understanding and identification. The company follows strict quality control tests which include test for all raw, packing materials and finished products, in process materials and finished products. QC records are maintained for six years.

We would like to thank Ally Pharma Options Pvt. Ltd for being so hospitable and devote their time to our visit. It has helped us to be acquainted with the working of pharmaceutical in such a way that it would not be possible with just reading texts.

**Krupa Thakkar**  
(Final.Y.B.Pharm.)



## Pharma Education and Technology

“Create your future from your future, not your past.” - Werner Erhard

Our world is moving at an exhilarating pace and there is no force in this universe which can stop it from transcending to the skies. This era of the world is dominated by education and technology. Education is the key to a good, disciplined, successful and happy life. This is a universal fact. Combined with technology it is constantly transforming the blueprint of life.

We, pharmacists are one of the major fraternities of the health care system around the world. The diseases are getting multifarious in nature. Plus the cut-throat competition from pharmaceutical industries all over the world is increasing. To come up with radical solutions for every aspect of drug development right from its designing and patenting to its trials is essential.

Thus to produce such deep-seated solutions a thoroughly educated pharmacists possessing sound theoretical and practical knowledge are required. It is the curriculum and the system of education which defines this. India today with a gigantic population of about 125 crores is a blistering market with regards to healthcare from all perspectives. The question which arises is that the system of education of pharmacy is competent enough? If yes high, let's explore it further to be the No. 1. If not, why? Is the true importance of a pharmacist actually understood? Where do we stand in the future? With the bliss of technology and some real razor sharp minds it's possible to accomplish the herculean task of making India the leader in healthcare systems.

Thus, our theme - 'Pharmacy Education and Technology'.

Let's welcome change and make a revolution with the desire to give the best to humanity.

### The oriented curriculum

A lot of times right after lectures in which we yawned to glory, bunch of friends sit together in the canteen having tea discussing how we managed to stay up somehow during the lecture. Even though the teacher saw us yawning she let go.

But what's interesting is the discussion which happens, 'kya boring subject hain yaar, kisne banaya hain yeh? Kya milega yeh padke? Koi zarurat nahi hain yeh subject ki'. Well to be very honest these are some of my exact words when I'm bored of lectures and I'm very sure I share the same feeling with my colleague's, friends, juniors and seniors.

But this is a hallucination from which all of us suffer. Let me tell you the essence of this pharmacy curriculum.

1st on my list is General Chemistry which from our view is not so general. But the concepts which we learn in this subject are so critical that it gets repeated in n no of subjects not only at graduate level but also at post graduate level. It teaches us kinetics of reaction. It tells us about the isotope effect without which scientists wouldn't have been able to show evidences of various reactions in organic chemistry.

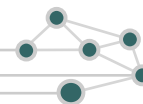
Organic chemistry all the four semesters in the 1st two years sucks blood. It's responsible for the benzenes dancing in the dreams. Majority will hate it some fall in love with it. Organic chemistry is the foundation stone for medicinal chemistry and pharmacy is quite incomplete without our bible Morrison and Boyd. It's reasonable to say that if you don't get Organic chemistry right its elder brother, Medicinal and Pharmaceutical chemistry will be like the cruel ring master in a circus.

Picture this, listening to lecture on diuretics, you are confused where exactly JMG (Juxta glomerular) cells are located? The PCT comes first or DCT? How much is the normal GFR? If u need answers to this, a comprehensive study of Anatomy Physiology and Pathophysiology is a prerequisite.

Physical pharmacy and pharmaceutical analysis go hand in hand. One teaches you the basic concepts of it and the other teaches you not only concepts but also techniques. Imagine, you develop a compound and you want know what it is. Only the Spectrophotometer can help us with it. Yes, it can be said it's just a machine so just press few buttons and you get the results on the computer screen. But then what's the difference between us and machines. Understanding matters.

# Profound Thinkers

## Microprocessing pharmacy education



Pharmaceutical Engineering is another subject for whom we don't have sufficient affection but then who wants the designs of their large scale instruments to fail in their own manufacturing unit. It teaches us a lot on the smallest points involved in the processing of raw materials. It helps us understand what has been used till date and how we can change it in the future keeping the same principle but with more efficient designs.

Pharmacy without pharmaceuticals is like a photo without a frame. One of the very vast, indispensable subjects we learn, it's the heart of pharmacy. You may have very good brains, limbs and kidneys; if the heart is missing, blood is not pumped. Similarly, even if you possess knowledge of pharmacology, pharmaceutical chemistry, pharmaceutical analysis and you are clueless how and what you will formulate, it's a complete ravage.

Microbiology, biochemistry and biotechnology are the silent weapons of pharmacy. As a healthcare professional if you don't know *Staphylococcus Aureus*, the DNA or the revolutionary hybridisation techniques then it's simply quite inadequate.

If pharmaceuticals is the heart then medicinal chemistry and pharmacology are the brain and the liver respectively. The importance of these subjects is self-explanatory.

Now it is the time to we know who is the soul of pharmacy. It is Pharmacognosy, imperative is an understatement of it. When we hear pharmacy we think of drugs, when we think of drugs nothing comes to your mind but plants. Plants are knights in shining armour for humans.

There are few subjects like drug store management, mathematics and statistics, forensics, psychology & sociology which I have to admit are important but somehow they don't get the recognition which they deserve as compared to other universities all over the world. For example the Texas university has social sciences and human behaviour as one of the subjects in the league of medicinal chemistry as a part of their pharmacy school program. Such steps actually make the pharmacist community oriented. Our programs have been industry oriented but the scenario is changing where in greater importance is being given to patient care and counselling.

One of the very interesting subject in the US universities are the clinical rounds where in pharmacists are taken alongside the doctors where they are made aware of the entire case of the patient.

Our entire syllabus superbly blends the subjects which hold the key to good learning experience. Amendments can be definitely done and should be done with a positive attitude which would benefit the country as it would give refined pharmacists. With all due respect, this view is from students' perspective which could very well be wrong.

**Mustafa Mithaiwala**  
(T.Y.B.Pharm.)

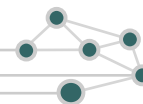
### Pharma Education

Globalisation, a term used so often in recent times to show the changes that are occurring at a rapid rate around us. Leaving aside the environmental effects of it, globalization has revolutionized the educational process across the globe. We in India have entered the new millennium with a greater emphasis on higher education, especially professional education. Talking about pharmacy education, pharmacy was first introduced as 'pharmaceutical chemistry' and 'pharmacology' which were subjects of B.Sc. degree. Prof Schroff on the call of Pundit Madan Mohan Malviya, Vice-Chancellor of Banaras Hindu University started a regular B.Pharm course of three years in July 1937. Since then pharmacy education is making rapid strides in India. From handful of B.Pharm degree institutions 50 years ago, we now have about 200 degree colleges training more than 10-12 thousand students for B. Pharm degree. The number of M. Pharm and PhD aspirants in pharmacy has also increased in recent past.

From being introduced as a course to becoming a profession, pharmacy is one of the most developing professions in India. With respect to the Pharma Industry, last quarter of the century has had phenomenal growth. We are proud that we are not only self sufficient in drugs but India is a global supplier of medicines. But the question is, as budding pharmacists are we trained enough to prepare ourselves for the challenging jobs? The standard of diploma education

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is controlled by the Pharmacy Council of India, which has not upgraded the course curriculum of diploma in the last twenty years. The situation in degree pharmacy is similar. Where most of the curriculums have not been changed or updated, a pharmacy student finds it tough to adapt to the outer systems after the four year degree. This applies specially to the Pharma Industries which due to the cut throat competition and in order to maintain cost effective production have to remain advanced. It may seem to be a meager thing at the University level but globally it makes a difference. As a matter of fact, worldwide pharmacists play a very important role in healthcare but unfortunately their Indian counterpart is struggling for recognition. Looking at the current scenario, there is an urgent need to initiate an academic exercise aimed to revamp the curriculum, keeping in pace with current and emerging trends in the field of pharmacy, Unfortunately all these years, enough emphasis was not laid on strengthening the components of Community Pharmacy, Hospital and Clinical pharmacy, while designing the curriculum at diploma and degree levels of teaching.

Though there have been no distinct changes in the curriculum, some gradual changes have been brought about in the examination structure. The degree course of pharmacy is four years with two semesters. At present, out of these eight semesters examinations, first six semesters have internal assessment of grades, for the held examinations whereas the last two semesters are assessed by external moderators; this pattern was put into practice two years back. Previously every alternate semester the students had to undergo external moderation thus increasing the pressure on the student in many ways. Every examiner would expect a different style of answer, the scare of appearing in an external board, trying to over stress on every answer to ensure he/she does not lose on any section. In addition to this, students were expected to write their papers in different universities. The centers were provided on the basis of their college district. This would be a challenging situation for a student who got a far away center.

Each semester each subject holds fifty marks. Earlier, these fifty marks were divided as thirty-five for semester examination and fifteen for periodic test which are mid-term examinations. Fifteen marks for periodic tests wasn't a small amount. A degree student was required to put in definitely not equal but almost similar amount of efforts for the periodic test as for the semester examinations. Not only did this increase the burden as well as the pressure, it also ceased the possibility of the student doing anything beyond concentration on academics. But this has changed for the good now, at present the semester examinations are forty marks and periodic tests are ten marks each. The students can now concentrate on the semester examination perfectly and the periodic tests are less stressed upon. This allows students the time to include extracurricular activities such as health campaigns, poster presentations etc. which help in broadening the thinking and also helps in the betterment of the individual as a pharmacist.

Hence I would like to conclude by saying that in the new millennium due to technological innovation and improved communication, drastic changes are taking place. The field of pharmacy cannot keep away from changes. The time is now here for those certain mandatory changes to be brought about in the Pharma education in India such that the profession gets its dues both from the government and the public.

**Hetuk Shah.**  
(S.Y.B.Pharm)

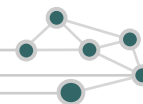
### Pharma Education

"Pharmacy is the health profession that links the health sciences with the chemical sciences and it is charged with ensuring the safe and effective use of pharmaceutical drugs." That's how Wikipedia defines it. For a student it is a career, an ambition and of course a learning process.

Pharmacy education in India was initiated by Medical College, Madras in 1860, the purpose was to develop pharmaceutical skills of students of medical degrees or diploma course or of those pursuing hospital assistance. Since then there has been tremendous improvement and growth in Pharmacy Education all over the globe. The current curriculum in India comprises of a Bachelor's degree of four years, a Masters degree of two years i.e. M.Pharm. and a Diploma course of two years and of course there has been a continuous branching of the subjects for post-graduation

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## Microprocessing pharmacy education



over the years. The current syllabus of pharmacy in India to a great extent assimilates the knowledge required by a pharmacist to utilise chemical as well as natural sources to the benefit of human health, while ensuring safety. Subjects range from the compounding, manufacturing, dispensing and storage of various dosage forms such as liquid orals, parentals etc., the study of the anatomical and physiological aspects of the human body and the therapeutic effects, pharmacology and toxicology profile of the various xenobiotics of chemical and natural sources on it, and also provide an insight into their chemistry. It also includes the analytical techniques and skills required to ensure the purity and safety of medicines.

Thus a pharmacist should ideally play as important a role as a medical practitioner in healthcare profession for the betterment and safety of community health. It is only by educating and spreading awareness can one ensure the safe and optimum use of drugs - be it about the possible addiction to painkillers or that of a combination therapy of drugs and hence the importance of taking all the medication prescribed at the instructed intervals. But as we realise this importance we also realise the fact that pharmacy education in India is not completely at par with the advancement of technology in the industry and parts of the syllabus consist of elements which may now have been modified or even redundant. This makes upgrading of the syllabus the need of the hour.

Another undeniable aspect of pharmacy in India is that pharmacists are considered as chemists or medical representatives only as compared to the title of 'healthcare professionals' acquired by them in other parts of the globe. The reason for this too is an undeniable fact that pharmacy education in the west is more patient-oriented and caters to community health management, whereas pharmacy in India has always been more industry oriented. This makes it important for the syllabus to elaborate on the community duties of a pharmacist as well and train them for the same. But of course on the other hand the pharmacy professionals in India are striving relentlessly with a view of changing this perception. To bridge the gap of pharmacists in India and abroad. The Government of India agreed to the proposals put up by the Pharmacy Council of India (PCI) for introducing a six year Pharm.D and three year Pharm.D (Post baccalaureate) Course in India too.

Thus efforts need to be channelized in the direction of improving the course such that it is up to date with the advancing technology and equal emphasis should be given to both Industrial and Community Pharmacy. And so with time one can wish to see greater opportunities for pharmacists in the healthcare sector and a pharmacist can fulfil the noble duty of serving human health to his best.

Sunaina Bhaskar.  
(T.Y.B.Pharm.)

### Is Your Doctor Influenced??- A Reality Check

Picture this.

You are waiting in the waiting room at your doctor's office. Look around, fellow patients are not the only ones there. You know who I'm talking about, medical representatives with their huge bags. Hold on, the bag doesn't contain only medicines. There are gifts. What you don't see is how extravagant the gifts can get.

Ever stop and wonder about these practices? What is expected in return for all of these gifts? Prescriptions. Yes, it is all a part of the number game after all.

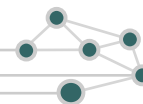
Ideally the doctor's prescriptions should only be on the basis of what his patient needs are. But this doesn't seem to be the case since most of the physicians decide whether to prescribe a drug, not on the basis of the disease his patient suffers from, but on the basis of the RETURNS he is getting from that company.

Drug makers have openly admitted that they pay insurance companies just so that their product comes under the 'Recommended list'. They give rewards to doctors who switch to their brands. They also admit of openly gifting doctors



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## Microprocessing pharmacy education



with the gifts ranging from mere notepads, to expensive watches to a fully paid trip abroad. And in their defense the only thing which these companies say is "It is a common practice today, if you want to remain competitive."

My question is it might be a common practice today, but was it the same 30 years back? Anything that is common is not always ethical.

The key person who acts as a link between the physicians and the companies is the Medical Representative. The ethical practice would be when these reps are trained by the company to stop giving non related gift items to physicians in return for a prescription, and in turn trained on doing their duty- of providing the right information of the drug with its benefits and safety. Let the doctor decide the winner in this number game.

A lack of proper regulations, monitoring systems in place, unfair business competition and people's lack of awareness regarding medicines is to be blamed in this case.

In my opinion the best solution to this problem would be to let each party do its role.

The marketer to make strategies, not of choosing gifts, but of conveying the benefits of his brand. The doctor has his own role of making the life of a patient better and the patient, his role, of being aware of these practices.

The future of pharmaceutical industry is in our hands. Let's all play a fair game. Wake up, if you wish to bring about a change in it.

**Manasi Shende**  
**NMIMS Pharmaceutical Management (Batch 2006-10)**

### Typically U.S.

Tylenol. Confused me for the first time I heard it as a friend referred it to me to lessen my fever. Yes, I am a 'pharmacist', I should know. To add to my misery it is used as casually in the United States as we back in India use Crocin, and it turns out, it is nothing but our sweet old Paracetamol. As difficult was it for me to realize its Okra for Ladies Finger and Cilantro for Coriander, brand names for medicines have their own way out in the US. It gets challenging as we, Indian students even begin to mention ourselves as Pharmacist, again an extremely different definition for the same, in any casual conversation.

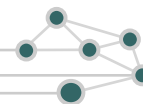
But again, if it was only about the jargon. It is their modus operandi, the way they have structured their education system. Indian graduate here is actually an undergraduate. You are a graduate student only when you try to obtain your Master's degree. A typical American undergraduate, as he or she enters a graduate program, has at least five different jobs showing off their 'skills' on his or her resume, while we struggle our way out filling our resumes with a couple of poster presentations and that one internship we did before our Final year. It's also when you are expected to have 'stories to share' in your class, on stock-outs, record systems and some other lost concepts just because you introduced yourself as a pharmacist. And that is when I realized how badly I need Google webpage ready in front of me on my laptop in class.

India, besides China, is and will remain the country that manufactures cheap drugs. The word cheap would be an understatement when you in your life have bought medicines for Rs. 4 and here there is obviously nothing below \$1. Pharmaceuticals and their policies in India is really a simple concept when it comes to comparison with United States. Pharm.D. degree, a required minimum to call you a pharmacist is nothing but a rigorous course with minimum one thousand hours of working in a pharmacy.

That's when the concept of globalizing or rather having uniformity in the education system with exams such as Foreign Pharmacy Graduate Equivalency Examination (FPGEE) makes complete sense. Although it is not intended to measure educational outcomes or institutional effectiveness, it may be a reliable and valid criterion to assess the quality or success of international pharmacy programs. Pharmacy education in India traditionally has been industry and product

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oriented. In contrast to the situation in developed nations, graduate pharmacists prefer placements in the pharmaceutical industry. But we need to realize things beyond that. There is an absolute blindfolded method which does not let students in India to explore, and with all that talent we have, it seems like yelling for a lost cause.

It is not even a year I am out of the Indian education system, but I feel the scope of improvement not only in the education system at the undergraduate level but also the way technology has been used in the healthcare systems by the pharmacist. For example, an extremely simple system called as the Electronic Medical Records [EMR] not only records all the basic information of the patient and the drugs he or she has been taking, but also records the allergies, previous administrations, vaccinations, resistance and most importantly a follow up. This is a national record system in the United States which can be viewed by the hospital systems and federal associations from one corner of the country to another only for the benefit of the patient.

It is not that the US is perfect in having their drugs made available for every citizen, but it only is the effort they put in making the access easy. Their annual expense on healthcare is almost a 17.6% of their Gross Domestic Product, which is almost 12 times of what India is paying at the moment, but what makes me happy is that India doesn't have to. It is not in my capacity to determine when the inequity in drug development and healthcare industry attain parity, but I believe this is an exciting time for healthcare industry in India, and It all comes down to the big 'P'. Some say population, and some say politics.

**Tanvi Joshi (Ex-student)**  
**Master of Public Health**  
**Candidate 2014**  
**Boston University**

### **Pharma Marketing and Mass Media Advertisement?**

All the glitzy ads on the 'idiot box' that make us buy stuff we probably don't need are not a part of the Pharma realm. I understand the ethical considerations involved due to drug abuse and drugs being bought without prescriptions, but isn't telling people about life saving drugs more important than asking them to shell out money for the latest steam iron or the new vitamin enriched chewing gum?

Well, NO!!!

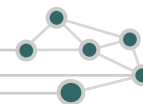
It's true. I don't believe the Indian Pharmaceutical Industry is mature enough to go through such a huge transition. There is still a lot that we need to learn and imbibe before we try to emulate the advertising freedom of the developed US market. First, we need to get proper control systems at the retail level to regulate the sale of prescription drugs. Most of the drugs are meant to be sold on physician's prescription only but yet are as freely available as any other grocery item.

Secondly, we need to ask ourselves the question that, as a society, are we ready to stop the current unethical practices that we follow as consumers? It is the moral responsibility of every individual to uphold the law regarding dispensing of drugs. And it is the consumer's ignorance of the importance of a prescription which can turn out to be fatal. In such circumstances would it be advisable to show people advertisements, depicting the signs and symptoms of diseases, which could trigger a fear of a disease that he/she may actually not be suffering from?

Here is an example of the Indian consumer psyche. It is my point of view, and I am sure many of you might have a different one, but I don't believe that fairness creams actually lighten your skin tone. But there is no arguing the statistics which show the explosion these products have created in the cosmetic market. Is the average Indian consumer really bought over by the ads which show the transformation of a relatively dark skinned girl into a fair princess in 15 days? As a fellow marketer, I applaud the genius who decided to target the deep-rooted desire of the consumer. But then the question arises - what's going to stop someone from using the customer's fears and emotions to sell his prescription product?

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There is definitely scope for Pharma companies to use the mass media for generating awareness about certain diseases or use it as a platform for conducting CSR (Corporate Social Responsibility) activities. But the use of mass media as an all out promotional medium is not a realistic option, at least in the near future.

Kaushal Kothari  
NMIMS Pharmaceutical Management

### Sticky Web Technology For Dispensing Powders

#### Introduction

Powder handling is technically challenging, but accurately filling capsules with milligram quantities of potent APIs at the manufacturing speeds and outputs required for a large scale product adds another layer of complexity. Sticky Web technology can accomplish high-speed manufacturing technology that can dispense pure active powders.

Sticky Web is a scalable technology capable of accurately dispensing 0.1–100 mg of powder, with a variety of particle size distributions, onto edible or inert adhesive webs or surfaces. Accuracies are typically greater than 4% and it can deliver commercial manufacturing speeds of up to 60000 doses/hr.

#### Principle behind Sticky Web

When a piece of adhesive parcel tape is dipped into powder and the excess shaken off, the quantity left adhering is directly proportional to the surface area of the tape. The exact quantity depends on the combined properties of the powder and the specific adhesiveness of the material used.

#### Dispensing the Powder

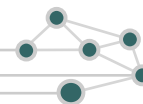
The powder dispensing head and process are critical to the Sticky Web approach. The Web is preprinted in the initial stage in the production process. The powder falls on to the sticky webbing through a hopper and gets incorporated within the web. The technique delivers uniform coverage for free flowing powders, as well as powders that have a dry clumping behavior. This technique can also be used for fragile powders which require careful handling and which are prone to degradation and loss of activity. Apart from the powder dispensing, the other two main system components are the web or film carrier and the printable adhesive.

Edible or inert films are widely used because they are safe to ingest, while also being robust and flexible enough for standard web handling. These edible or inert films offer instant tack (sticking) in the dry state and gently adhere to the steel powder dispensing drum, without leaving any residue. Also these adhesives offer good powder adhesion and dissolve readily in water. The biggest plus-point of this adhesive is that it provides good encapsulation to the powder along with controlled drug release.

#### Future Prospects, Scope and Merits

- The development activity so far has been angled towards the pharmaceutical sector using edible flat carriers, but the adhesive could just as easily be printed onto other surfaces, including bubbles or tablets, which are then subsequently dosed with powders. Two or more substances could even be combined in the same delivery package.
- The technology is also viable for accurate, high-volume dosing of powders to improve existing manufacturing processes or generate innovative new products or processes.
- From the pharmaceutical industry Sticky Web offers considerable promise for high-speed production environments where online inspection systems could be used to validate every powdered area and to improve process feedback, increase efficiency and reduce costs.
- One of the most interesting features of Sticky Web is the potential for improved release of active powders that have a tendency to agglomerate during dissolution when delivered via powder-coated films compared with capsules.

Abhishek Nair  
(S.Y.B.Pharm.)



### Cloud Computing and the Pharma world.

**Cloud computing** is a technology that uses the internet and central remote servers to maintain data and applications. Cloud computing allows consumers and businesses to use applications without installation and access their personal files at any computer with internet access. This technology allows for much more efficient computing by centralizing storage, memory, processing and bandwidth.

A simple example of cloud computing is Yahoo email, Gmail, or Hotmail etc. You don't need software or a server to use them. All a consumer would need is just an internet connection and you can start sending emails. The server and email management software is all on the cloud (internet) and is totally managed by the cloud service provider Yahoo, Google etc. The consumer gets to use the software alone and enjoy the benefits. The analogy is, **'If you need milk, would you buy a cow?'** All the users or consumers need is to get the benefits of using the software or hardware of the computer like sending emails etc. Just to get this benefit (milk) why should a consumer buy a (cow) software /hardware?

Cloud computing is broken down into three segments: "application" "storage" and "connectivity." Each segment serves a different purpose and offers different products for businesses and individuals around the world.

In Today's Life sciences eco-system, Pharmaceutical businesses are playing a dominant role in adapting to rising changes both technology and innovation. But talking about the innovation, in today's context, technology defines innovation and improves core business.

Pharmaceutical industry is facing relentless challenges and change is a norm for pharmaceutical business. Despite critical need and high demand for pharmaceutical products, the industry remains under pressure from physician, payers and regulators to deliver more effective treatment at lower cost.

Pharmaceutical business model based on development and marketing of blockbuster drugs, is increasingly economically unsustainable.

R. Arun Kumar, Vice President and Head of the Global Life Sciences Business Unit at Infosys during a conference spoke in depth about cloud computing in relation with Pharma companies. Here is an excerpt from that.

"2010 was wrought with challenges for the pharmaceutical industry with the aftermath of the global recession continuing to put pressure on drug discovery, compliance and customer interactions. These pressures have been further exacerbated by ongoing industry challenges including a shrinking drug pipeline, in which the numbers of New Molecular Entities or NMEs being approved by the U.S. Food and Drug Administration (FDA) have decreased in the last several years. This is the end of the blockbuster drug era, and larger pharmaceutical companies face growing competition from the generics.

In addition, most large pharmaceutical companies are facing a high proportion of patent expirations between 2011 and 2014, which analysts expect will negatively impact over \$150 billion of revenues of branded drugs. Demand from emerging markets is also shifting traditional sales and marketing practices. Pharmaceutical companies are exploring non-traditional customer bases and must tackle the associated challenges that come from dealing with new markets, such as dealing with unstructured distribution, counterfeiting and lower price points.

Challenges are not new to the pharmaceutical industry. Will pharmaceutical companies get a break in 2011? What are the trends that are impacting the pharmaceutical industry? Here are our predictions for 2011:

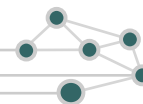
Technology will help pharmaceutical companies overcome the big challenges

at present; companies are investing in better collaboration, standardization and analytical tools to improve R&D productivity as well as their sales and marketing operations. Research departments are using next generation sequencing technologies to fail fast and fail cheaper in their quest to identify the right target drug candidate. They are increasing their efforts by collaborating with external partners for research as in-house research is not delivering results as quickly. They are also using standardization and analytical tools for better reuse of existing digital assets and information.

Clinical trials are becoming more adaptive by incorporating signal detection technologies and more efficient in terms of global supply chain and forecasting. Companies and organizations are beginning to embrace the web, especially

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the web 2.0 models of social networks and media in terms of interactions between physician and patients and patients and drug makers.

The future of the healthcare economy is going to be driven by three big imperatives: affordability, prevention and patient-centricity. The cost of healthcare is increasing as the increasing elderly population lives well beyond their earning years, and incidence of chronic diseases increases. Current healthcare practices focus on symptoms and regard the patient as a passive recipient of service, but patient-centric care is emerging to consider the patients' values, involve them in clinical decisions, and ensure transparency and self-care. Technology can minimize errors and redundancies while ensuring better healthcare delivery through patient data analytics, evidence-based medication, paperless transactions and more. With IT integration, patients can be accorded personal attention through seamless communication and interactions with care providers.

Customer-centricity is leading to patients and physicians demanding better outcomes, and patients having a higher stake in their own health management decisions and treatment regimes. Patients want health solutions, not just drugs from pharmaceutical providers, and they expect more adherence and compliance support for complex and chronic treatments. They are also turning toward prevention and lifestyle changes to combat diseases. Social media is helping in promoting preventive healthcare.

Cloud computing will shape the pharmaceutical sector

The impact of cloud computing is just beginning to be felt in the areas of research, development, clinical trial management and healthcare information exchanges. The explosion of data from next generation sequencing, the growing importance of biologics in the research process is making cloud-based computing an increasingly important aspect of R&D.

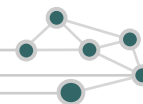
We are already seeing complex genetic sequences and biomarker data being hosted in the cloud by a few open source bodies. Data are then accessed in a secure fashion by individual companies for their research needs. However, there is still a need for more integrated data sharing across research, development, manufacturing, and sales functions to improve trials, increase time to market for drugs, and utilize feedback faster. We've seen an increasing trend of pharmaceutical customers exploring use of both public and private clouds for data storage, hosting and access needs. The main impact to pharmaceutical companies of increased usage of cloud computing is a reduced dependence on their own IT infrastructures. Cloud computing provides the ability for companies to move away from capital expenditures to an operating expenditure/pay-as-you-go business model. The business advantages of cloud computing include the standardization and streamlining of operations, higher reusability, better integration and stronger collaboration with external entities and the health care ecosystem. However, as the uptake of cloud increases, we can also expect a greater focus on security, privacy, data protection and IP management as reliance on the cloud grows".

Thus, cloud computing is one of the many emerging technologies which are being used now by the industry. This can accommodate and can be used by the student fraternity in the form of sharing notes, uploading of data directly via the cloud to students by the faculty which becomes hassle free for both. It reduces both time and money. Clouds have the advantage of being accessed by the cell phones as well. In the generation of Smartphones it is not a dream when u want to show your spectroscopic results to the professor. Connect, transfer, upload and the job is done. Wouldn't life be so much easier if you could have your results, data with just few taps of the fingers?

**Mustafa Mithaiwala**  
(T.Y.B.Pharm.)

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### Current Education and Advances in Medicinal Chemistry.

Being in the first year we saw seniors carrying thick books called the Wilson or Foye and cramming complex structures, which I perceived as rangolis. They all told me that medicinal chemistry is one of the “WORST” subjects you can have. In the second year we were introduced to medicinal chemistry, just as the seniors had quoted medicinal chemistry was very tough and included mugging the rangolis. When I came into the third year I gave my GRE and decided that I wanted to continue my education in the field of medicinal chemistry. Most of the people told me that I was crazy and that my entire life I would be mugging up chemical structures. I always hoped that they would be wrong and my intuition on medicinal chemistry would be right.

Luckily God answered my prayers. After coming to USA and two years into my PhD program I have not had to mug up a single chemical structure. So now the major question arises. What is truly medicinal chemistry? Well there is no one answer to this. Medicinal chemistry is a multi disciplinary field that has many ramifications. Any studies or research that helps or aids in the process of drug discovery or development is medicinal chemistry. Unlike the common misconception medicinal chemistry is not only chemistry. It is a blend of both biology and chemistry.

Well the most traditional branch of medicinal chemistry would involve Structure Activity Relationship (SAR) studies. This is one of the evergreen branches of medicinal chemistry. This field of medicinal chemistry would involve first trying to synthesis a scaffold or a skeletal structure of a novel compound that has modest biological activity. Using this information you would use tools like computational chemistry and docking studies to try to find out the important chemical regions of the scaffold. Then you would synthesis the analogs of the parent compound and test for better biological activity. Hence this branch of medical chemistry involves chemistry, computational studies as well as in vivo and in vitro studies.

Some times it is very difficult to randomly hit upon a gold mine and obtain a good scaffold or a skeleton structure that has modest biological activity. Hence we can learn from nature. There are many plants and animals that produce chemicals, which have very good biological activity. Obtaining these chemicals from the natural habitat is generally tedious, expensive and not economic and hence medicinal chemist can step into the situation and produce these complex natural products in the lab. Once this natural product has been made, you can perform SAR studies on it to improve its activity and physiochemical properties. This branch of medicinal chemistry mainly involves chemistry and a limited amount of computational chemistry and biological studies.

Now switching gears from chemistry to biology. Medicinal chemistry is currently shifting to a much more biological approach to discover new drugs. Modern science and robotics have made it possible for us to perform micro and nano scale biochemical as well as pharmacological experiments. This modern technology enables medicinal chemist to test 1500 novel drug like compound at one time using million dollar robots. This is the most promising field of medicinal chemistry in the near future. This stream of medicinal chemistry is called high throughput screening (HTS). As the name implies you are going to be screening a large amount of drugs or drug like molecules for a new target.

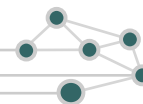
And the most futuristic field of medicinal chemistry is gene therapy. A day is not far when instead of medicines your doctor would prescribe genes to you. The fundamentals of this research lay on the bases that all the diseases states or disorder are due to increased or decreased levels of proteins, which are transcribed by the genes. Hence you can always alter the levels of genetic expression to permanently cure the disease. This field of medicinal chemistry is still new and a lot of studies are being conducted.

From the above we clearly see that medicinal chemistry is slowly shifting from pure chemistry to a blend of biology and chemistry to mostly biology. It is a very promising line in the future and is the first and the most important step in the process of drug discovery and development.

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Graduate assistant

Department of Medicinal and Natural Product Chemistry  
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### Overview of Clinical Development

Dr. Ajit Nair is the President of Global Operations, SIRO Clinpharm. During the seminar conducted on 4th February 2012, in the Convention Centre of MET, he gave us the overview of Clinical Development. He had an extremely student-friendly approach and he summed up the details regarding the clinical research and drug development in a wonderful manner. I would like to share a summary of the knowledge I gained in this session with all the members of MET IOP who may have missed out on this insightful lecture.

#### Summary

To begin with, the approach and the attitude of the person towards Clinical Research are important. The person should be technically sound and must be well-read and must also have a complete knowledge pertaining to the field. However, the student must not only be well read but also have excellent communication skills to express the knowledge that they have. Communication skills are of prime importance. When MNCs merge, the number of career opportunities in the field of clinical research and drug development reduce. Funds are not easily available for drug development and patents expire in 20 years. The cost for the development of a drug is approximated to be 1 billion dollars and the time frame to develop the drug is around 20-25 years. From this 18 years are utilised for the development of the drug and 2 years for the marketing of the drug.

**Blockbuster** drug is one which has a sale of approximately 1 billion dollars.

#### Ideal API (Active Pharmaceutical Ingredient)/ Product

- Drug which can be utilised for primary therapy and can be utilised for complications by simple modifications or add-on ingredients.
- Drug which can be utilised from mild to severe conditions
- Can be safely given in renal/hepatic compromised patients
- Has to be administered only once a day
- Has minimum drug-drug interactions
- Has minimum adverse effects
- Minimum contra-indications
- Can be administered in a wide variety of dosage forms

It is practically impossible for one single drug to possess all the above-mentioned characteristics. However, the clinical strategies used to design a drug focus on these points.

#### The Three major stages in drug development are as follows:

##### Phase 1

- The approximate amount of money spent during this phase is 2 million dollars
- FTIM (First time in man) procedures carried out using the single dose escalation and multiple dose escalation methods
- Healthy Volunteers are recruited for the same

##### Phase 2

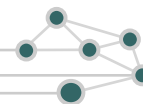
- The approximate amount of money spent during this phase is 25 million dollars
- 400-500 volunteers required
- Proof of concept
- Dose Range Finding Study

##### Phase 3

- The approximate amount of money spent during this phase is 250 million dollars
- 5000-10,000 volunteers required
- Safety and Efficacy studies
- Special Population studies carried out for renal compromise and hepatic compromise patients, geriatric patients, pregnant ladies, specific Races etc.

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- SAFETY is of prime importance even if efficacy is good. Eg: Clinical Data will be rejected even if the drug shows tumours in animals

### Challenges of Conducting Trials

- Speed: Recruitment & Data Collection
- Data Quality & Integrity
- Regulatory hurdles
- Costs

In my opinion, for those who are interested in a career in Pharmacology, there should be an optional course involving “Clinical Research and Drug Development” in the Final Year of the Bachelors Course which would provide certain credits which can be accounted for.

**Avani Gosalia**  
(T.Y.B.Pharm.)

## Pharmacist as a clinical research professional

### Ajit M Nair MPharm PhD, President- Global Operations, SIRO Clinpharm

Clinical trials are research studies conducted in humans and designed to answer specific questions on drugs/devices using scientifically controlled methods and, if found safe and effective made available to patients with specific diseases. India is one of the emerging destinations for the conduct of global clinical trials and related data activities. This is largely due to the immense patient pool, trained doctors and clinical research professionals who can contribute to global drug development programmes. Since 2008, the number of clinical trials being conducted in India has grown at a Compound Annual Growth Rate (CAGR) of 18% and this trend is expected to continue in the years ahead. This increase in the number of clinical trials has led to numerous job opportunities for life sciences professionals in general and pharmacists in particular. A thorough understanding of pharmaceutical sciences & pharmacology coupled with a basic understanding of the clinical development process makes pharmacists particularly suitable for a career in clinical research. Typically, a pharmacist is well suited for functions such as clinical operations, clinical feasibility and clinical data management.

### Clinical Operations Department:

Clinical operations department is responsible for managing the conduct of a clinical trial. A pharmacist usually begins as a Clinical Research Associate (CRA) in the clinical operations department. A CRA ensures that the trial is conducted and documented properly in accordance to the trial protocol and regulations. The CRA is a key link in the clinical trial process. He/she is the main line of communication between the investigators, i.e. the doctors conducting the trial and the sponsor i.e. the pharmaceutical company. It is the CRA's responsibility to ensure:

1. That the investigator has received all trial related documents, investigational drug and other trial supplies on time and in adequate quantity.
2. The investigator and investigator's trial staff are adequately trained on the trial protocol.
3. The investigator has written informed consent from the subject before participation in the trial.
4. Periodic overview of the specified trial functions of the investigator and investigator's staff.
5. Only eligible patients are recruited in the trial by monitoring patient recruitment
6. Verification of the accuracy of all trial records.
7. All adverse events are duly reported to all concerned authorities.

The role of a clinical research associate is a great opportunity to participate in the clinical development of a drug. The CRA's role is ideally suited for an individual who is methodical, scientific & detail oriented and has a willingness to travel. This role necessitates significant amount of travel domestically and to international locations. CRAs who do well can grow into Project Managers who take responsibility on complete delivery of the protocol in the specific therapeutic area.

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### **Clinical Feasibility Department:**

Clinical feasibility involves validating the 'practicality' of a running a clinical trial in the assigned countries and also at clinical trials sites (hospitals/clinics). A thorough feasibility is the basis of any successful clinical trial. Feasibility teams are responsible for identification of clinical trial sites and investigators (doctors) across various therapeutic areas and geographies. This role involves liaising with doctors and hospitals across the country and perform site feasibility visit if required. It also requires development and maintenance of a site and investigator database, feasibility surveys for various phases of clinical trials, for drugs devices. This team also ensures that the investigator has adequate qualifications and resources for conducting a clinical trial, facilities like laboratories, equipments, etc, adequate staff to safely and properly conduct the trial and for calculating the "patient recruitment/enrollment rate" for a particular trial.

### **Clinical Data Management:**

Clinical data management is an integral part of the clinical trial process. It involves organizing and supervising the collection, analysis and validation of the data generated during the course of a clinical trial. A pharmacist who is detail oriented and is well organized, could be a valuable asset to the data management team. The responsibilities of a clinical data manager include:

1. Designing case report forms which capture information/data generated by an investigator during a clinical trial.
2. Data cleaning and validation.
3. Liaising with sites to resolve errors in data
4. Ensuring the quality and integrity of the data generated
5. Resolving client queries pertaining to the clinical data

### **Conclusion:**

Most global bio-pharmaceutical companies are aware of the advantages of outsourcing clinical trials to India. This increase in outsourcing is bound to result in numerous job opportunities in the clinical research industry. The aforementioned departments and roles are a stepping stone to senior positions. In conclusion, a pharmacist's role in the clinical research industry is a extremely rewarding & challenging position and is in line with the pharmacist's oath of discovering drugs which alleviate human suffering and contribute to the advancement of public health.

## **Abstracts of the Tech Fest - Rx 2012**

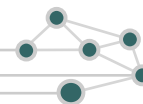
### **NUTRIGENOMICS - DEVELOPING PERSONALIZED DIETS FOR DISEASE PREVENTION**

Recent advances in molecular biology and information generated by the human genome project has fostered the emergence of nutrigenomics. Nutrigenomics is the study of the effects of foods and food constituents on gene expression.

#### **WHAT IS NUTRIGENOMICS?**

Nutrigenomics is about how our DNA is transcribed into mRNA and then to proteins and provides basis for understanding the biological activity of food components. The term 'high throughput tools' in nutrigenomics refers to genetic tools that enable millions of genetic screening tests to be conducted at a single time. Hence nutrigenomics has been defined as application of 'High throughput genomic tools' in nutrition research. It also involves the characterization of gene products and the physiological function and interaction of these products.

Initially, scientists thought that the food we eat just had one job it was metabolized to provide energy for the cell. Indeed that is what happens to most dietary chemicals, but not all. Some don't get metabolized to provide energy for the cell, they peel off after ingestion and become ligands that bind to proteins involved in 'turning on' certain genes to one degree or another. A diet that's particularly out of balance will cause gene expression that nudges us towards chronic illness, unless a precisely tailored 'intelligent diet' is employed to restore the equilibrium.



### How Do Nutrients Affect The Genes?

Genetic disorders include polymorphism in gene of a hormone Leptin which results in gross obesity. Folate metabolism is a good example where a common polymorphism exists for genes that encode the methylene tetra hydro folate reductase (MTHFR). According to World Health Organization, more than 60% of global disease burden will be attributed to chronic diseases associated with obesity by 2020. In this regard, a number of natural dietary supplements and micronutrients have been studied for their potential in weight management. Among these supplements, hydroxycitric acid(HCA) a natural extract isolated from the dried fruit rind of *Garcinia cambogia* and the micronutrient niacin bound Chromium, have been shown to be safe and efficacious for weight loss. Using cDNA microarrays, it has been demonstrated for the first time that HCA supplementation altered the expression of gene involved in lipolytic and adipogenic pathways in adipocytes in obese women and upregulated the expression of genes involved in serotonin receptor gene in the abdominal fat of rats. Similarly, NBC supplementation up regulated the regulation of myogenic genes while suppressed the expression of genes that are highly expressed in brown adipose tissue in diabetic obese mice.

To address the increasing incidence of these diet related diseases, the role of diet and nutrition has been and continues to be extensively studied to prevent development of a disease. Nutrition research is investigating how nutrition can optimize and maintain cellular, tissue, organ and whole body homeostasis, which requires understanding of how nutrients act at molecular level. Nutrition and DNA go hand in hand. As a result nutritional research has shifted from epidemiology and physiology to molecular biology and genetics. Hence, nutrigenomics was born.

Bijal Dalal  
(S.Y.B.Pharm.)

### A Survey on Mobile Radiation And Specific Absorption Rate (SAR) Limits- One Step Towards Health Care

Mobile phones use electromagnetic radiation in the microwave range for communication. Part of Radiations emitted by mobile phones are absorbed by the body which has increased the risk of health hazards such as DNA mutations, eye and brain cancer, high blood pressure, sleep disturbance-restlessness & impotency. Children are more vulnerable to the harmful effects than adults. The rate at which radiation is absorbed by the human body is measured by the Specific Absorption Rate (SAR).For modern handsets such limits have been set by governmental regulating agencies in many countries and is on the verge of being applicable in India as well.

A successful survey was conducted after a thorough literature research regarding hazards of mobile radiations and its awareness about the recently talked SAR limits-an initiative taken up by the Indian Government. 300 masses (100 students, 100 working professionals, 50 non working and 50 senior citizens) were asked to fill the questionnaire containing 10 questions to know the awareness about mobile radiation and SAR limits. The questions included were whether they use cell phones and since how many years, average usage, where they usually keep their phones and whether they are aware about the radiations emitted and their effects on the human body. Survey also included questions like how frequently they use bluetooth headsets and ear phones to talk over the phone, awareness about the SAR limit and preferences for cell phones with such specified limits. After the questionnaire, efforts were taken to create awareness by distributing pamphlets about hazards of radiations by using social networking sites. A small verbal survey with professionals working in the mobile galleries was also conducted and it was found that they were aware about the mobile radiations and SAR limits whereas most of the people working in the mobile mini-stores did not know about the same.

Results of the survey were interpreted using pie diagrams and the outcome indicated that approximately 95% of the masses use cell phones since 6-10 years with the average usage of 2-3 hours per day. 25% use bluetooth headsets and ear phones while talking which is one of the ways to minimize radiation exposure and most of the masses keep their cell phones near their body even when not in use which again increases exposure to radiations. 95% knew about the emitted radiations but only 65% were aware about their hazardous health effects. Only 3% knew about the SAR limits as a recent initiative taken by the government and they all preferred cell phones with a minimum SAR.





With increasing use of cell phones since childhood, it is very important to educate and create awareness about the harmful effects of mobile radiation, their prevention and minimization. It is also important that government agencies take a quick step for initiating SAR limits to ensure the safety and the well-being of people.

Keyword-

Mobile Radiation, SAR limit, Survey, Awareness.

Bibliography-<http://www.psrast.org/mobileng/mobilstarteng.htm>

DNA newspaper article dated 31/12/11, pg no. 10

Namita Hegde, Tanvi Kanekar, Zarina D'costa  
(S.Y.B.Pharm)

### OPHTHALMIC DRUG DELIVERY BY PARTICLE LADEN CONTACT LENSES

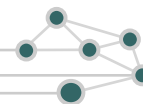
Glaucoma is an optical condition caused by pressure build up in the eye and is the leading cause of blindness. Current methods to treat glaucoma include medicated eye drops and oral medication, which are both inefficient. The success of ocular delivery relies on the potential to enhance the drug bioavailability by controlled and extended release of drug on the eye surface. Several new approaches have been attempted to augment the competence and diminish the intrinsic side effects of existing ocular drug delivery systems. In this contest, progress has been made to develop drug-eluting contact lens using different techniques which have the potential to control and sustain the delivery of drug. Recent discoveries prominently include novel method of drug delivery that involves enclosing the drug in the contact lens to be worn directly over the eye. The drug-encapsulated contact lens can deliver the drug to the target tissue more effectively. The most popular type of ophthalmic lens is soft contact lens made of thermo-set polymer hydrogels. These gels possess three dimensional networks with cross-links, similar to hard contact lens polymers, and are typically produced by cast molding or spin cast method. Basically two approaches have been used to incorporate drugs into contact lenses; loading drugs into pre-formed lenses, or manufacturing the lens with the drugs entrapped inside. Traditionally, contact lens are applied by soaking it in a drug solution for a short duration and placed over the eye surface. However, the therapeutic efficiency of the commercial contact lens was not very successful and the treatment remains elusive. The major cause for this is due to the very low uptake of drug by the lens and the rapid release which eventually leads to low residence time. Key limitations of soaking methods include diffusion of water into the polymer and drug aqueous solubility. Another obvious limitation of these contact lenses is that patients must wear them at all times. Also the lenses are generally stored in a hydrated state, which has the potential for the drug to leach out of the lens over time. The use of polymers with varying width of channels in the matrix can control drug delivery rate which remains effective for longer periods. Approaches like molecular imprinting, particle-laden soft contact lenses, barrier approach, complexation have been proposed to improve the corneal drug delivery. Various lens materials and their requirement for ophthalmic use, also have effect on the drug loading. The type of contact lenses and the technique of drug loading affect the residence time of the drug. Since medication would be delivered directly into the eye, less would be needed to achieve the same results as eye drops. Medicines are released by the special contact lenses through a timed-release mechanism, rendering current administration cycles unnecessary. Finally, the occurrence of side effects would be diminished because most of the drug would be delivered to the targeted area. These novel delivery systems can potentially improve patient adherence, reduce side effects, increase efficacy, and ultimately, preserve sight for glaucoma patients.

Key Words: glaucoma, lenses, hydrogels.

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Archita Menon, Devashree Mujumdar  
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### **An Interpretational Study of Sleep Patterns**

Sleep is a period of rest for the body and mind, during which volition and consciousness are in cessation and bodily functions are partially suspended; also described as a behavioural state, with characteristic immobile posture and diminished but readily reversible sensitivity to external stimuli. (1) Scientifically it is a complex neurochemical process essential in humans for maintenance of health. Sleep majorly influences cardiovascular functions, immune system and hormonal diurnal cycles. Short sleep duration is linked to, depression and decreased memory and may give birth to sleeping disorders like restless leg syndrome, sleep apneas and insomnia. (2) The life style affects the sleeping patterns. The study of the sleeping schedules of the populace is quintessential from the point of view of the public and for pharmacists which strive for a better health care system all around the globe. Despite variations in sleep quantity and quality, both related to age and between individuals, studies suggest that the optimal amount of sleep needed to perform adequately, avoid a sleep debt, and not have problem sleepiness during the day is about 7-8 hours for adults and at least 10 hours for school-aged children and adolescents. (3) Erratic sleeping schedules have affected the performance of the students, employees in educational institutions and offices respectively. A general survey comprising of 17 simple questions was prepared which was circulated on the internet as well as on paper. The survey is an ongoing process out of which a sample of 200 surveys was taken for study. The sample was divided in three age groups of 16-25, 25-60 and 60 & above with 109 males and 91 females. The sample contained 77% students and 21% working class. 26 % of the population slept for 4-6 hours which does not meet the required amount. 25% of the masses agreed that they do not get sound sleep and 49% woke up about 1-3 times during their sleep which isn't a good indication. 59% of them slept between 11-1am and also made us aware that 135 of them spent time in the night for entertainment purposes such as instant messengers, SMS, T.V. and the internet. This may be related to the fact that a significant amount may have very hectic schedules leaving no time for entertainment. 69% were found to have headache and dizziness as a result of lack of sleep. As it would be expected, 71% of the population's mood/concentration/working efficiency got affected. One of the most relieving facts was that 97% did not cling to sleeping pills to induce sleep. But the worry lies in the future as it may cause repercussions to the individual in near future. The state of sleeping patterns as documented is not satisfactory and the importance which the topic deserves is not really met. It's important that a healthy life style be followed to produce razor sharp minds for a productive future. To achieve it's mandatory to make sleep a priority.

Keywords: Sleep, Sleeping Patterns, Sleep Disorders, 200 People, General Survey, Working Efficiency, Productive Future.

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**Rakhi Modak, Mustafa Mithaiwala (T.Y.B.Pharm.)  
Hetuk Shah (S.Y.B.Pharm.)**

### **Pharmaceutical Metal Detector and Separator with De-duster**

The Pharmaceutical Industry needs highly accurate separation of metal contaminations from pharmaceutical formulations and raw materials to meet requirements of demanding consumers. There are several possible sources of metal contaminations like raw materials contaminations, mixing process errors, and machinery failures such as metal shades in tablet compression machine, capsule filling and forming process. It is essential that all these sources of contaminations are to be identified and removed before product leaves the factory.

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This is a manual model which consists of The Pharmaceutical Vibratory De-duster in line with Pulse Induction type of Active Metal Detector and Separator. This vibratory de-duster is capable of removing unwanted powder which is created that adheres to the surface of tablets and capsule shells during compression and filling respectively. The metal detector and separator system features detection sensitivity towards contaminating metals like ferrous and stainless steel even when they are present in tiny quantities.

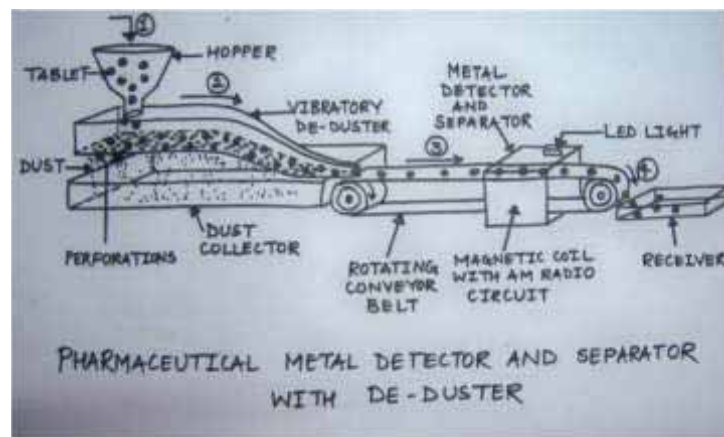
The Vibratory De-duster uses vibrations to remove unwanted powder from tablets or capsule with the help of perforated surface. In Pulse Induction type of Metal Detector and Separator, detection of metals depends upon magnetic coil and AM circuit. When some metal is moving close to the coil, magnetic field around the coil is changed and it sends a short magnetic pulse. A LED light flashes which indicates metal contamination present in given preparations and then that can be easily separated out. The power supply required for vibrations of de- duster and metal detection is provided manually with the help of dynamo.

This is compact assembly which is enclosed by plastic to provide hygienic environment. It provides ease of cleaning, dismantling of parts. It is not only cost effective but also requires only one operator.

### Conclusion:

This model is capable of detection and separation of metal contaminations from all pharmaceutical formulations and de-dusting of tablets or capsules.

Keywords: Metal detector, Metal separator, De-duster, Manual.



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### Multi-Lid Exblemix

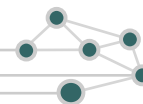
Extrusion is one of the many steps required to make uniformly sized spherical particles. Spheronisation is used primarily to produce multi-particles for controlled drug release application. The major advantage is the ability to incorporate high levels of active ingredients without producing excessively large particles. Extrusion is preceded by the following processes:

- Dry mixing of the active ingredients
- Addition of the binder
- Blending of the binder with the powder mix so as to produce, a mass which is to be extruded

These steps currently involve the use of different manufacturing equipments. Here we propose a multi-use Exblemix which may accomplish the same steps of one batch in one equipment.

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**Materials used for this working model:** Stainless steel, plastic, glass.

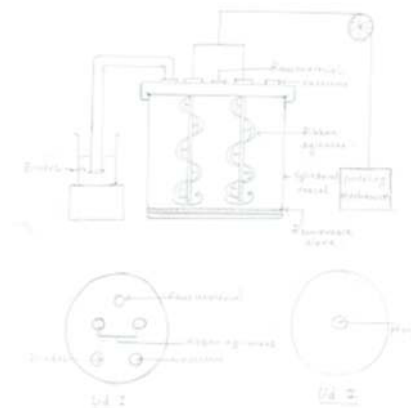
**Construction:** The Multi-lid Exblemix comprises of the following parts:

- A stationary vessel.
- Variable lids comprising of different attachments. Three lids have been proposed for this vessel.

1. Lid with blade agitators
2. Lid with paddles
3. Plunger lid

Of these, 1. And 2. have provisions for inlet of liquids, connection to the vacuum and inlet for the raw materials like powder mix.

The base of the vessel is converted into a sieve of 5mm holes. Attached to this base, is an aluminum plate with holes of same size as above. This arrangement is such that, initially the holes do not coincide and the vessel remains closed. Likewise, the holes can be made to coincide, for the opening of the sieve and the extrudes can be discharged out.



### Working:

- Dry powder can be added through one of the openings of the Exblemix.
- Vacuum is used to deliver the binder. When the desired quantity of the binder has been added, the vacuum application can be stopped.
- The blade agitators can be moved manually, as a result of which they rotate at a considerable speed, in the same direction, to form the dough.
- Then the lid can be replaced by the plunger lid.
- The base is arranged such that the sieves coincide and the plunger is pushed into the cylinder. As a result of this, extrudes can be obtained in the retrieving chamber.
- Similarly, using the third lid with the paddles, other processes like mixing of the solutions can be performed.



The Multi-Lid Exblemix is cost-effective. It can be used to perform extrusion, blending and mixing in the same vessel.

**Key words:** Multi-lid, Plunger lid, Retrieval chamber, blade agitators, paddles.

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- Textbook of Pharmaceutics -The science of dosage forms by Aulton.

-Ruchi Daptardar, Dixit Bagadia, Chirag Thakkar  
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## Tablet Coating Machine

Tablet coating is application of a coating composition to a moving bed of tablets with the concurrent use of air to facilitate the evaporation of solvent. Coating is usually done to improve aesthetic qualities of the product, mask bitter taste, odour or colour of the drug, to provide physical and chemical protection to the drug and protect the drug from acidic environment of the stomach. The tablet coating machine consists of a circular pan mounted angularly. The pan is rotated on its horizontal axis by a rotating handle. Coating solution is applied to the tablets using a spray. Air for drying is directed into the pan and onto the tablet bed surface and there is an exhaust to collect the volatile solvent. The use of a volatile solvent facilitates quick evaporation of the solvent. Materials used for the model include aluminium

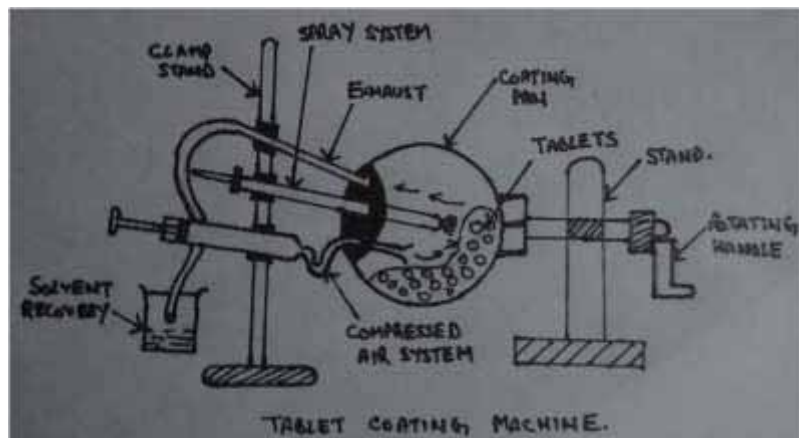


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pot, iron rods, stainless steel peddle, metal clamp, stand, a plastic spray system, rubber tubes, a compressed air system. The main advantage of the following model is that it can be efficiently used for lab-scale coating. Also, since the mechanism is simple it is easy to operate. The materials used are easily available and construction of the set up is cost effective. Spraying of coating material allows the for continuous application of solution in film coating process. The set up is environment friendly since the solvent is collected at the end of the operation.

Sketch of the model:



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## Prototype of Capsule Filling Machine

### Abstract:

Hard gelatin capsule can be filled with a large variety of materials. To do this they are loaded into a hopper & from these pass down through rectification section. Metal fingers strike them in middle because of different diameter. Bodies & caps are separated. Bodies are then passed under the dosing mechanism & filled with material. Dosing system can be divided into two parts dependent dosing system & independent dosing system. Mechanism with auger comes under dependent dosing system whereas dosator & tamping finger comes under independent dosing system.

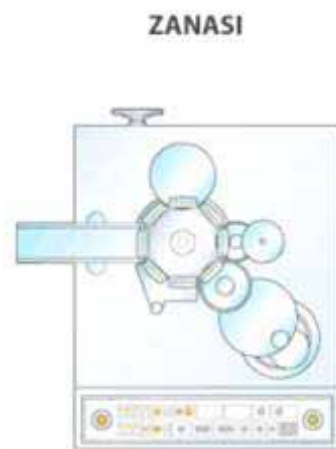
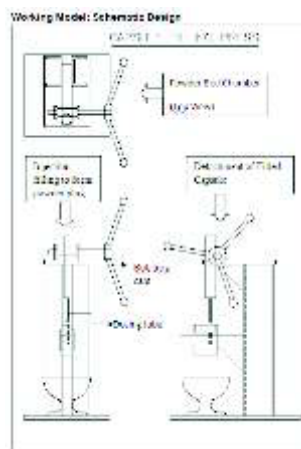
A similar attempt has been made to build up a model that resembles the 'capsule filling machine' incorporating similar concept but different mechanisms.

### Industrial Equipment & Schematic Diagram

Materials used for working model: Metal rods, rotatory cam and handle, powder (drug of choice placed in powder bed chamber), hard gelatin capsules

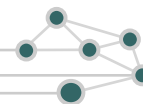
#### Mechanism:

Machine consists of a die cavity wherein the capsule body is placed. There is a movable rod attached to a rotatory cam. The filled powder bed chamber is opened onto capsule body with the help of plunger. Handle is rotated causing the lowering of the rod over the powder bed. The manual force is stored as potential energy which gets converted into kinetic energy. In this case, the rotational energy is converted into translational energy which gives



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motion to the rod and rod moves downwards and compressed powder plugs are pushed into the capsule body. Rate of filling is dependent on the number of times that the handle is rotated.

- Advantages:

- ? Rate of filling is dependent on amount of time handle is rotated.

- ? It is an accurate, fixed dose.

- ? There is minimum spillage.

The filled capsule without too much wastage of powder thus explains the success of the working model without the use of electricity or batteries as sources of energy.

**Key words:** Powder bed chamber, dosing tube with injection filling mechanism, powder plug formation, spring with cam mechanism, ejection mechanism for detachment of filled capsule, accurate dose

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- Avani Gosalia, Nikita Shah  
(T.Y.B.Pharm.)

### Snake Bite

The number of people who died of snakebite in India was not known for decades. But there was no doubt thousands perished. This was, after all, the proverbial land of snakes. Finally, in April last year, a study estimated about a million people were bitten by snakes and approximately 46,000 died annually. These first reliable figures illustrate the enormity of the problem rural people face in this country. We also know more people are killed by snakes in India than any other country in the world.

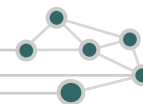
Snakebite is a major occupational hazard in a country where farmers typically walk barefoot along field bunds. While we can exhort them to wear footwear, it will take years for this long-observed practice to change. People also tend to walk in the dark without a torch. For several decades, the price of disposable batteries was prohibitive for ordinary villagers, but the use of the new, affordable Chinese-made rechargeable torches may reduce the death toll. The other habit that puts rural people in harm's way is sleeping on the floor. When farm economy is floundering, advising them to sleep on bedsteads will only elicit blank, uncomprehending stares. If people get bitten and are rushed to the hospital, the lack of doctors, trained in treating snakebite, as well as the limited availability and effectiveness of antivenom serum, jeopardize their lives further.



The only way to save a person from a lethal venomous snakebite is the administration of antivenom serum, even though too many people rely on superstition and alternative forms of medicine. Indians have had a surefire way of surviving a lethal bite as early as the 1920s, when the Central Research Institute began producing this life-saving drug commercially. Yet, almost a century later, despite snakebite continuing to be a major public health crisis, the availability

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of antivenom serum in small towns and villages, where bites usually occur, is limited.

Six manufacturers produce a serum made from the venoms of the Big Four: cobra, common krait, Russell's viper and saw-scaled viper. Despite advances in antivenom production techniques, those of the Indian companies remain relatively unchanged since the 1950s. Several international publications have criticized Indian antivenoms for their impurity and for causing complicating side effects.

All the companies claim identical potency for their antivenom serums, which is astonishingly low. This means many more vials are needed to neutralize the harmful effects of a venomous snakebite. One study says a person needs an average of 51 vials to treat cobra and krait bite, while 32 vials are needed to treat Russell's viper bite. Another study quoted as much as 91 vials being used to neutralize cobra and krait bites. Such high doses of impure antivenom serum can potentially cause adverse reactions. In Sri Lanka, up to 87% of snakebite victims who were treated with Indian antivenom developed untoward side effects.

A standard clinical procedure to validate the claimed potency values has never been published. Inexplicably, prior to the mid-1950s, antivenom serums were much more potent than those currently available. It's not clear why the Indian authorities lowered the standards.

The low potency and high adverse reactions have raised doubts about the effectiveness of Indian antivenom serum. Venom is a protein-rich soup with numerous toxins, peptides and enzymes. What snakes eat determines the combination and proportion of these elements in their venom. In many species, the venom of young snakes, which eat small creatures like frogs, undergoes a transformation as they grow older and switch to eating larger animals like rodents. Where they live also appears to influence the kind of venom they produce, even within a species. For instance, the venom of Russell's vipers in south India is quite different from the north. So antivenom made with the venom of a southern viper may not work against the same species in other parts of the country.

Indian antivenom is produced for four snakes against the World Health Organization's (WHO) list of twelve high-priority species for South Asia. In short, we do not know what coverage the antivenom serum has. Does it neutralize the bites caused by the young of the same species, and is it as effective anywhere in the country. Does the serum made for the Big Four counteract the venom of any others? In the absence of these tests, physicians have no choice but to try and save the lives of their patients with the only tool they have.

In 2010, WHO recommended a set of standard procedures for the assessment and evaluation of anti-venoms anywhere in the world. David Williams, a clinical toxinologist working with the Global Snakebite Initiative, says Indian anti-venom has to be tested for effectiveness against the high-priority snake species. Only then can doctors be sure that the treatment they are providing their patients, which is often expensive and beyond poor people's means (between Rs. 450 and 500 a vial), is effective.

Williams further advises that once the lack of effectiveness of the available anti-venom serum is established, if the problem cannot be fixed easily, then a new start has to be made to produce a broad-spectrum antidote for the entire region. Several manufacturers should be licensed to produce this life-saving drug. Anti-venom should be distributed free or at heavily subsidized rates through the public health system. In Tanzania, people sought anti-venom treatment much more readily when it was provided free, which indicates their reliance on traditional medicine and superstition is at least partly driven by cost considerations.

Indian health authorities must recognize snakebite for what it is: a neglected tropical disease that maims and kills tens of thousands of poor people. While the WHO acknowledged this fact in 2009, snakebite is yet to feature in any of the organization's programs. Besides the development of an effective anti-venom serum and training doctors, a major awareness campaign needs to be launched to teach people to avoid being bitten by snakes, as well as the appropriate first-aid practices to follow in the event of a bite. India has to overcome poor governance, abysmal regulation of anti-venom quality, and social inequity to arrest the unconscionable loss of lives to snakebite.

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Chinmay Joshi (S.Y.B.Pharm.)



### **Biomarkers: Treatment using Personalized Medicine**

#### **Introduction**

Medical science has found cures for diseases that used to seem unstoppable. From antibiotics to cancer therapies, the varied range of treatment that are now available to improve and prolong human lives are astonishing. Yet much of the practice of medicine remains imprecise and to some extent generalized.

The discovery and tackling of biomarkers acclaims a new frontier in healthcare and a novel way of administering medicine on an individual basis. It also brings with it the promise of more certainty and a greater amount of accuracy in giving a medicine to a person on a one-to-one basis. The first biomarker research started in Vancouver and Toronto in Canada.

#### **What is a Biomarker?**

Biomarkers are substances, such as genes or proteins, which can indicate the presence of a disease or infection, a change in the functioning of an organ, the risk or progression of an illness, or a response to a drug. Biomarkers can also indicate disease's susceptibility to treatment, or an individual's exposure to a toxin.

#### **Uses of a Biomarker**

- Biomarkers in blood and saliva will help the parents of childhood cancer patients to make treatment choices that will minimize the risk of long-term complications and hence can be used by doctors to a great effect in the field of Paediatric Oncology
- In the process of organ transplantation, evaluation of blood biomarkers can predict which patients are most likely to reject organs after transplants
- In the field of Psychiatry biomarkers can be used to study patterns of gene expression that will enable doctors to predict which patients will respond to particular antidepressants.

#### **Future Prospects**

Canadian researchers are leading the way in discovering and utilizing biomarkers that could ultimately improve the way medicine is practiced and prescribed

Their work will allow healthcare practitioners to devise treatment and preventive strategies to dispense a particular medicine to their patients based on their individual profiles and genetic makeup.

The end result will be a better way to tackle ailments on an individual scale.

**Abhishek Nair**  
(S.Y.B.Pharm.)

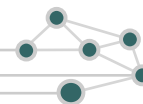
### **Probiotics: The Side Effect Killer of Antibiotics**

As defined by WHO, probiotics(PBs) are "living microorganisms, which, when administered in adequate amounts, confer a health benefit on the host." These includes lactobacillus, bifidobacter, saccharomyces boulardi etc. PBs are also called 'friendly bacteria' or 'good bacteria'. The normal human GIT contains more than 400 diverse species of bacteria and organisms that colonize the gut soon after birth & lives in harmony with man. These are useful, producing essential vitamins & nutrients mandatory for normal life. During disease, when antibiotics (AB) are prescribed, they enter the system & starts destroying all living microorganisms as they cannot decipher the 'good'(useful ones living in colon) from the 'bad' (those causing infections) & result is gas, cramping & diarrhoea. When PBs are taken along with AB, it prevent such loosies. PBs serve other functions like breaking down food for digestion, producing lactase enzyme & vitamins in intestine & changing acidic environment for harmful bacteria. PBs regulate over-expressed immune responses in susceptible patients (inflammatory bowel diseases, IBS, asthma, allergic rhinitis & dermatitis) & help enhance immunity. Its role as an immune modulator give an edge in providing tools for vaccination, especially in



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vulnerable patients (elderly, children etc) & in immuno-compromised. E.g. of food containing PBs are yogurt, fermented & unfermented milk, miso soup, tempeh, soya beverages, curd rice, kimchi, pickles etc..

**Dinesh Choudhary**  
(S.Y.B.Pharm.)

### **Luminance: A New Anti-Aging Formula**

Collagen is essential to maintain our skin's healthy and young appearance, but the body decreases production at 21 and wrinkles begin to be visible after 30. Also the typical nutritional deficiencies and products lacking vitamins, minerals and amino acids accelerates premature aging.

Luminance is a new anti-aging supplement introduced by Organic Health Labs, that comprises a blend of 41 ingredients. These includes: Hyaluronic acid that retains water used for hydration of the epidermis and reconstituting the fibers that hold skin tissue. It also stimulates collagen production.

Pycnogenol treats osteoarthritis, muscle pain, erectile dysfunction (ED) and an eye disease called retinopathy. Selenium, an antioxidant, helps neutralize free radicals and stimulates the immune system. PABA is an ally of the skin helping to reduce aging spots, wrinkles, stop hair loss and can help prevent or stop graying. Damage caused by ultraviolet radiation is also minimized by PABA.

Alpha lipoic acid, a powerful antioxidant reduces dryness of the eyes and skin, promotes skin elasticity and smoothen wrinkles. Luminance also contains MSM, calcium, boron and vitamin D3; key ingredients in fighting osteoporosis.

This is accomplished in two blends. Swiss Collagen Anti-aging blend contains the highest quality hydrolyzed Swiss Collagen™ (type I & III). This high ORAC value formula protects cells, tissue and skin against aging and environmental damage while hydrating and providing skin elasticity, wrinkle reduction and radiance. The Hair, Nail & Bone Health Blend improves blood circulation, aids in production of keratin, contains enzymes that repair damaged tissue and increases molecular cross-linking, critically important for strong bones, skin, hair, nail and cell renewal.

**Dinesh Choudhary**  
(S.Y.B.Pharm.)

### **The Role of Pharma Companies in Preventing HIV/AIDS**

In 1986, Dr. Suniti Solomon and her colleagues were the 1st to discover the AIDS virus in India. After being asked where Pharma companies could play a role in controlling the disease Dr. Solomon zeroed in on prevention of mother to child transmission (PMTCT) of HIV. It is expected that about 24,000 babies would be born every year infected with HIV in absence of prevention of PMTCT.

#### **The four fold strategy for effective PMTCT:**

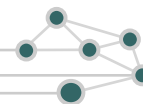
1. Preventing HIV infection among prospective parents- making HIV testing related to sexual health such as antenatal and post-partum care.
2. Avoiding unwanted pregnancies among the HIV women by providing appropriate counselling about their reproductive lives.
3. Preventing the infection from mother to child during labour, pregnancy and delivery and breast feeding.
4. Integration of HIV case, treatment and support for women to be positive and family support.

#### **Revised PMTCT recommendations from WHO are based on:**

1. Lifelong antiretroviral therapy (ART) for HIV infected women in need of treatment for their own health which is also safe and effective in reducing MTCT

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2. ARV prophylaxis to prevent MTCT during pregnancy, delivery and breast feeding for HIV infected women not found in need of treatment. For HIV infected women, the initiation of ART for their own health is recommended for all women who have CD4 cell count of 350 cells/mm
3. This is irrespective of clinical staging and for all women in WHO clinical stages 3 or 4 irrespective of CD4 cell count.

### Contribution of Pharma industry to this:

The obvious answer is to provide drugs in sufficient quantity and affordable cost.

### ART regimen:

AZT + 3TC + NVP or AZT + 3TC + EFV.

### Alternate recommended regimens:

TDF + 3TC (or FTC) + NVP and TDF + 3TC (or FTC) + EFV.

Women not eligible for ART are recommended to have ART prophylaxis during pregnancy, labour, delivery and breast feeding. In addition to drugs, the corporate can support monitoring tests, since the majority of HIV infected pregnant women are asymptomatic or have only mild symptoms, it is certainly critical that service provide access to CD4 counts to determine which women should initiate lifelong ART or which women are eligible for the same. Also, mothers should be provided with good nutritional supplements, if opting for breast feeding. Hence, Pharma companies can help with free ART, at least for below poverty line or plan graduate cost programmes as part of their corporate social responsibility, helping with monitoring test, formula food for lactating mothers and nutritional supplements. Another very important role is to continue medical education for private provider as HIV is fast evolving speciality.

Neha Karekar,  
(T.Y.B.Pharm.)

## The Irrational Use of Antibiotics

Antibiotics are prescription medicines. No one should take antibiotics without the approval of a medical professional. However, people are taking small amounts of antibiotics everyday without realizing it.

### Antibiotics in meat

We must remember that antibiotics are not just used by people. They are mixed with food to feed livestock. According to the FDA, in the early 1950's, farmers discovered that adding antibiotics in animals' foods made the animals grow bigger and faster.

Research has found that 40% of all antibiotics sold in the U.S. are for agricultural use. Most of the antibiotics used in agriculture are used to speed up the growth of livestock. The antibiotics are "not used to cure sick animals but to promote 'feed efficiency.'" This means that they "increase the animal's weight gain per unit of feed." This helps to lower meat prices at the food market. Many studies have confirmed that antibiotics fed to livestock show up in the meat. And then we eat that meat. The FDA has recently reported that chicken and turkeys given fluoroquinolone antibiotics produced specific fluoroquinolone-resistant bacteria. And this bacteria infects over 10,000 people in the U.S. every year. It is scary because fluoroquinolones are a very commonly-used antibiotic. This has become such an important issue that health groups are taking action:

1. In 1977, FDA proposed an end to using low levels of the antibiotics penicillin and tetracycline in animal feeds.
2. In 1984, the Natural Resources Defense Council proposed an immediate stop to using low levels of penicillin and tetracycline's in food-producing animals.
3. In 1997, the World Health Organization recommended a stop to using antibiotics in livestock feed if those antibiotics are the same ones or related to ones used to treat humans.
4. In 1998, the Center for Science in the Public Interest recommended that the FDA stop the approval of fluoroquinolones in chickens.

# Profound Thinkers

## Microprocessing pharmacy education



### Antibiotics in vegetables

Antibiotics can also be found in vegetables and fruits. The U.S. Department of Agriculture funded a study to test this. Scientists took manure from animals that were given antibiotics. They grew different plants in the manure and then tested its leaves. What they found was alarming:

1. The antibiotic was present in fruits, vegetables as well as the vegetable leaves.
2. The amount of antibiotic in the plant was directly related to the amount in the soil.
3. The plants absorbed antibiotics in the soil as it grew.
4. Crops that grow underground might absorb even more antibiotics from the soil. Examples of such crops include potatoes, radishes, and carrots.

### Antibiotics in water

Our struggle to keep antibiotics effective in treating diseases does not stop with animals and produce. Antibiotics are also in our streams and rivers. In 2002, the U.S. Geological Survey tested 139 streams in 30 states. They found that 80% of the streams had traces of chemicals used for human and animal medicines. They also found dozens of pharmaceuticals and other chemicals in streams and rivers across the U.S. This is not only animal feed antibiotics but also antibiotics and other drugs that we flush down the toilet without a second thought.

It might seem that 'traces' of an antibiotic does not sound that dangerous but 'traces' of an antibiotic is exactly what helps bacteria become resistant. The bacteria gradually fight off the antibiotic when it is confronted with it again. Furthermore, such bacteria can also more easily learn how to resist other antibiotics.

We all know that washing your hands is important to avoid infections. Scientists are now studying if using soaps labeled as 'antibacterial' can cause resistance in bacteria. There are more antibacterial soaps now than ever before. But that does not mean they are better than regular soaps. A recent study found no benefit of using such soaps compared to regular soaps.

**Yogesh Shukla**  
(S.Y.D.Pharm.)



### Amazing Facts about Animals

The world is full of amazing and funny things that we may never know of. Here are some interesting facts on animals.

- "Moo, moo," says the cow everywhere in the world; and a pig says "Moo, moo" in Japan.
- it is against the law to have pets in Iceland
- Monkeys comb each other's fur to find salt from perspiration on skin while doing so. when they find salt granules they pop it in to their mouth
- The small intestine of an ostrich measures up to 46-feet in length.
- Gorillas sleep up to fourteen hours, a day.
- Sharks are the only known species to never suffer from cancer.
- Heavyweights! The tongue of a blue whale could weigh more than a full-grown adult elephant.
- Oysters change from every shrimp is actually born a male and then become females as they mature.
- Music lovers! Make a cow listen to music and there will be more milk in the bucket.
- A headless cockroach can survive for a couple of weeks. Its life would finally end due to starvation!
- A standing 4-foot child can fit into the open of a hippopotamus.
- An ostrich's brain is smaller than its eye.
- The taste buds of a butterfly are in its feet.

**Bhavini Panchal**  
(S.Y.B.Pharm.)

### Awesome Movie Quotes!

- After all, tomorrow is another day!" –gone with the wind
- "Keep your friends close, but your enemies closer. –Godfather
- All is well. – 3 idiots
- An idea. A single idea from the human mind can built cities. An idea can transform the world and rewrite the rules. - Inception
- There is no secret ingredient. It's just you. You have to believe it's special. –kung fu panda
- There's some good in this world, and it's worth fighting for. –Lord of the Rings
- Get busy living', or get busy dying' - Shawshank Redemption
- Hamari filmo ki tarah zindagi mein bhi end mein sab kuck thik ho jata hai, aur agar thik na ho to who the end nahi hai. Picture abhi baki hai mere dost. – Om Shanti Om.
- Haso jiyo muskurao, kya pata kal ho naa ho Kal Ho Naa Ho.....- Kal ho naa ho
- Happiness can be found even in the darkest of times, if one only remembers to turn on the light. –Harry Potter.
- It's not H-A-P-P-Y-N-E-S-S Happiness is spelled with an "I" instead of a "Y" - Pursuit of Happyness
- With great power comes great responsibility –Spiderman
- Koi desh perfect nahi hota.. use banana padta hai. –Rang De Basanti
- People should not be afraid of their governments. Governments should be afraid of their people. – V for vendetta
- The past can hurt. But, you can either run from it or, learn from it. –The Lion King

**Nabha Shirodkar**  
(Final Y.B.Pharm.)





### Being Human

Do we know which was the best machine created in this world and which is the worst at this moment? Think hard!!! It is us HUMANS!! Why are we changing? Darwin's theory told us to evolve. But it was for the best! Why is this machine which is evolving day by day creating filth in every aspect of life? Do we question ourselves? Why were we born? Do we even know the purpose of this life? Why do we see so much discrimination in the name of religions and castes? Why is everyone putting on a mask of being liberal? Why is a father raping his own daughter? Why is a poor old man treated by his sons in his family like a beggar and they are selfishly enjoying the wealth of an empire he built? Why are two brothers the two biggest enemies for a piece of land and few bundles of notes? What is compelling a teenager to commit suicide? Why do parents want their children to be doctorates when they want to be explorers? Why is it so easy for someone to rip off an intestine but so difficult to donate an eye? Why is it so hard for people travelling via public transport to adjust and accommodate? Why is it so easy for people to throw garbage everywhere? Why is it so difficult to give food worth Rs 20 to a poor 10 year old girl? Why are only doctors and engineers respected but sweepers and labourers not dignified? Why is the society turning away its eye from prostitutes when it is itself responsible for their existence? Why is Mother Nature being obliterated for selfish motives? What is this compelling force which is getting us attracted to do such atrocities? Let's tickle our conscience a little bit and we would realize how are we such ugly stains on the most beautiful virtue of Being Human!!!

Mustafa Mithaiwala  
(T.Y.B.Pharm.)

### Botox

World is always lead by trend be it either fashion, health, study or looks. The current trend doing gaga over the celebs and the population is Botox. BOTOX® is the commercial tradename for Botulinum Toxin Type A. Botulinum Toxin is derived from the bacteria Clostridium botulinum. BT causes Botulism poisoning, a serious and life-threatening illness in humans and animals. **Botulinum toxin** is a protein produced by the bacterium Clostridium botulinum, and is considered the most powerful neurotoxin ever discovered. IT is a non-surgical cosmetic treatment for moderate to severe frown lines typically used in people aged 18 to 65. When injected into muscles Botulinum Toxin has a local effect. Botox works by blocking nerve transmission to temporarily reduce the contractions of the facial muscles that cause frown lines. Doctor will administer several tiny injections of botox directly into the muscles of your face and performed without anaesthesia with minimum discomfort. Effect lasting only for 4 months it has to be repeated thus causing side effects.

Not realizing it in the blaze of splendor the side effects can include headache, respiratory infections, temporary eyelid droop, nausea and flu-like symptoms, temporarily paralyzing the muscles at the site of injection, squint/double vision, twitching of the eye.

Well at the end people get exquisiteness but at the price of health, but the question is how far the human race will go to pay for it...

Bhavini Panchal  
(S.Y.B.Pharm.)

### Diwali Crackers- a few Seconds of Pleasure and a Lifetime of Damage

Ensnared in his armchair engrossed in his favourite books of Gujarati Literature, I find my grandfather startled and disturbed; just as my heart too begins to beat harder when we hear the series of loud 'Rassi Bombs' go off. Our hands spring up to plug our ears but the noise levels boom higher when some 'Sutli Bombs' and 'Atom bombs' are set alight! The most preposterous of the lot is the 'Laxmi Bomb' which has a picture of the Goddess Laxmi imprinted on the stickers



on each and every bomb which is blown apart and burnt to bits; ironically by pious, God-fearing Indians. Next time you burst those ear-splitting, deafening bombs just remember that you are harassing every senior citizen in town.

Dogs hear every sound magnified to four times the volume at which we humans hear it. Imagine their plight during Diwali. My heart goes out to all the pet dogs in huge societies who whine, cry n bury themselves under all the furniture in the house. Even worse, the stray dogs on the roads that are simply terrified by the pandemonium and din caused by these loud bombs. It pierces my heart to watch them whimper away frantically searching for a place to hide. We humans most definitely end up being the cruel terrorists in their canine world as we torture them endlessly during this festival.

On ethical grounds, we reach a point where fire crackers should be banned completely because of the fact that there is a lot of child labour involved in their manufacturing process. But then again, it is a matter of concern since the counter-argument holds true that these crackers are the sole source of livelihood for many. Banning fire crackers completely on the basis of environmental studies in terms of air pollution would also need a revolution of a sort. We're not asking for such a radical change. Moreover, if bursting fire crackers is the way this festival has been celebrated for years, it would be asking for a bit too much to stop this tradition entirely! Indeed, the childhood of every Indian kid might remain incomplete if he hasn't seen a sparkling *fuljhadi* or a pretty flowerpot or the whizzing *jameen chakri*!

My only grievance is why we can't go by the term we all learnt in school: 'Diwali- the Festival of Lights'!! Why is this festival turning into a sheer nuisance for both the aged and the infants? Why add to the already existing noise pollution tremendously for just a few moments of destructive pleasure? Why don't we think about all the animals and birds that are traumatised by these sounds?

In the past few years, I have observed that the overall number of fire crackers burst has reduced. This has been possible because a lot of schools have created awareness amongst the students about the adverse effects of pollution on the environment. It can be easily noticed just by viewing the layer of smog that's in the air early morning on the day that follows Diwali. Encouraging students to celebrate a noise-free Diwali would be the simplest way to curtail this source of immense noise pollution.

Mankind is endowed with supreme intelligence and an exceptional sense of foresight to understand the consequences of every single one of his actions. In spite of knowing the fact that we are vexing all the creatures around, many of us repeatedly burst bombs year after year. If you and I understand the gravity of the situation and act responsibly and make a level-headed, rational and heartfelt decision of celebrating a noise-free Diwali, the rest of our race is sure to follow!

**Avani Gosalia**  
(T.Y.B.Pharm.)

### Politics

The good things we have and strive every single day to change that are not right. Be a hero not only for your family and friends but also for yourself. Politics from what I understand comes from the two words 'poly' which means many and ticks which means 'blood suckers'. But are the politicians the only ones to be blamed for our country's state today?? And more importantly why are we taking pot-shots only at the politicians?

We say that our government is inefficient. We say our laws are too old. We say the municipality does not pick our garbage. We say our public transport is disgusting. We say our roads are dirty, we say our country is in absolute pits. We say, say and say but what do we do about it?

We go to the polls to choose a government and the very next moment. We forfeit our responsibility. We want the government to provide us with clean roads but we are never going to stop chucking garbage all over nor are we are going to pick up a stray piece of garbage and put it in the dustbin. We want the railways to provide us with clean

# Out of the box

## Mixed Formulations...

washrooms but we are never going to use them properly unless it's our own home. Many a times we make loud and drawing protests against these thongs but again we continue behaving like that.

Our excuse? It's the whole system that has to change. So who is going to change the system? And what does a system consists of? Very conveniently for us it consists of our neighbours our friends and the government but definitely not you and me. We say we can't accept a country in which people are denied opportunity and dignity that everyone deserves but how many times have we taken a stand for people who are going through this?

We wait for Mr. Right to come along and work miracles for us with sweep of his hands, and if he does not come we run away. Like cowards hounded by our on fear and discomfort we run to American to praise their system and enjoy their glory. When New York becomes insecure we run to England when England experiences unemployment we jump into next flight out to the gulf. When the gulf is war struck we demand to be rescues and brought home the Indian government.

Don't wait for a hero to come along and make everything right. Be proud of your country, praise.

**Juhi Parsana**  
(F.Y.B.Pharm.)

## Funny Chemistry

- If you're not part of the solution, you're part of the precipitate!
- Organic chemistry is the study of carbon compounds, biochemistry is the study of carbon compounds that wriggle.
- Physical Chemistry: The pitiful attempt to apply  $y=mx+b$  to everything in the universe.
- Organic Chemistry: The practice of transmuting vile substances into publications.
- Inorganic Chemistry: That which is left over after the organic, analytical, and physical chemists gets through picking over the periodic table.

## Rules of the lab

- If an experiment works, something has gone wrong.
- When you don't know what you're doing, do it neatly.
- Experiments must be reproducible; they should fail the same way each time.
- First draw your curves, and then plot your data.
- Experience is directly proportional to equipment ruined.
- Always keep a record of your data. It indicates that you have been working.
- To do a lab really well, have your report done well in advance.
- If you can't get the answer in the usual manner, start at the answer and derive the question.
- In case of doubt, make it sound convincing.
- Do not believe in miracles--rely on them.
- Team work is essential; it allows you to blame someone else.
- All unmarked beakers contain fast-acting, extremely toxic poisons.
- No experiment is a complete failure. At least it can serve as a negative example.
- Any delicate and expensive piece of glassware will break before any use can be made of it.
- MOST IMPORTANT WARNING: HOT and COLD glass appear the SAME.

## Ban Dihydrogen Monoxide! The Invisible Killer

Dihydrogen monoxide is colourless, odourless, tasteless, and kills uncounted thousands of people every year. Most of these deaths are caused by accidental inhalation of DHMO, but the dangers of dihydrogen monoxide do not end there. Prolonged exposure to its solid form causes severe tissue damage. Symptoms of DHMO ingestion can include excessive sweating and urination, and possibly a bloated feeling, nausea, vomiting and body electrolyte imbalance. For those who have become dependent, DHMO withdrawal means certain death.

Dihydrogen monoxide:

- It is also known as hydric acid, and is the major component of acid rain.
- Contributes to the "greenhouse effect."
- May cause severe burns.
- Contributes to the erosion of our natural landscape.
- Accelerates corrosion and rusting of many metals.
- May cause electrical failures and decreased effectiveness of automobile brakes.
- Has been found in excised tumours of terminal cancer patients.

CONTAMINATION IS REACHING EPIDEMIC PROPORTIONS!

Quantities of dihydrogen monoxide have been found in almost every stream, lake, and reservoir in America today. The pollution is global, and the contaminant has even been found in Antarctic ice. In the Midwest alone DHMO has caused



millions of dollars of property damage.

Despite the danger, dihydrogen monoxide is often used:

- As an industrial solvent and coolant.
- In nuclear power plants.
- In the production of Styrofoam.
- Is a fire retardant.
- In many forms of cruel animal research.
- In the distribution of pesticides. Even after washing, produce remains contaminated by this chemical.
- As an additive in certain "junk-foods" and other food products.

Companies dump waste DHMO into rivers and the ocean, and nothing can be done to stop them because this practice is still legal. The impact on wildlife is extreme, and we cannot afford to ignore it any longer!

## THE HORROR MUST BE STOPPED!

The American government has refused to ban the production, distribution, or use of this damaging chemical due to its "importance to the economic health of this nation." In fact, the navy and other military organizations are conducting experiments with DHMO, and designing multi-billion dollar devices to control and utilize it during warfare situations. Hundreds of military research facilities receive tons of it through a highly sophisticated underground distribution network. Many store large quantities for later use.

## IT'S NOT TOO LATE!

Act NOW to prevent further contamination. Find out more about this dangerous chemical. What you don't know can hurt you and others throughout the world.

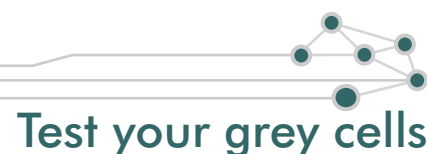
**Mustafa Mithaiwala**  
(T.Y.B.Pharm.)

## Pun Indeed!!

- A backward poet writes inverse.
- A bicycle can't stand on its own because it is two tired.
- A boiled egg in the morning is hard to beat.
- A dentist and a manicurist fought tooth and nail.
- A grenade thrown into a kitchen in France would result in Linoleum Blownapart.
- A hangover is the wrath of grapes.
- A lot of money is tainted - It taint yours and it taint mine.
- A man needs a mistress just to break the monogamy.
- A man's home is his castle, in a manor of speaking.
- A midget fortune-teller who escapes from prison is a small medium at large.
- A plateau is a high form of flattery.
- Acupuncture is a jab well done.
- Bakers trade bread recipes on a knead to know basis.
- I wondered why the baseball was getting bigger. Then it hit me.
- Local Area Network in Australia: the LAN down under.
- Marathon runners with bad footwear suffer the agony of defeat.
- Once you've seen one shopping centre, you've seen a mall.
- Police were called to a day care where a three-year-old was resisting a rest.
- Reading while sunbathing makes you well red.
- She was engaged to a boyfriend with a wooden leg but broke it off.
- Shotgun wedding: A case of wife or death.
- Show me a piano falling down a mineshaft and I'll show you A-flat minor.
- The dead batteries were given out free of charge.
- The man who fell into an upholstery machine is fully recovered.
- The professor discovered that her theory of earthquakes was on shaky ground.
- The short fortune teller who escaped from prison was a small medium at large.
- Those who jump off a Paris bridge are in Seine.
- Time flies like an arrow. Fruit flies like a banana.
- To write with a broken pencil is pointless.
- What's the definition of a will? (It's a dead giveaway.)
- When a clock is hungry, it goes back four seconds.
- When an actress saw her first strands of gray hair she thought she'd dye.
- When the smog lifts in Los Angeles, U.C.L.A.
- You feel stuck with your debt if you can't budge it.

**Avani Gosalia**  
(T.Y.B.Pharm.)

# Out of the box



## It is time to rack your brains and solve our MET IOP Special Brain Teasers!

### Crossword Puzzle:

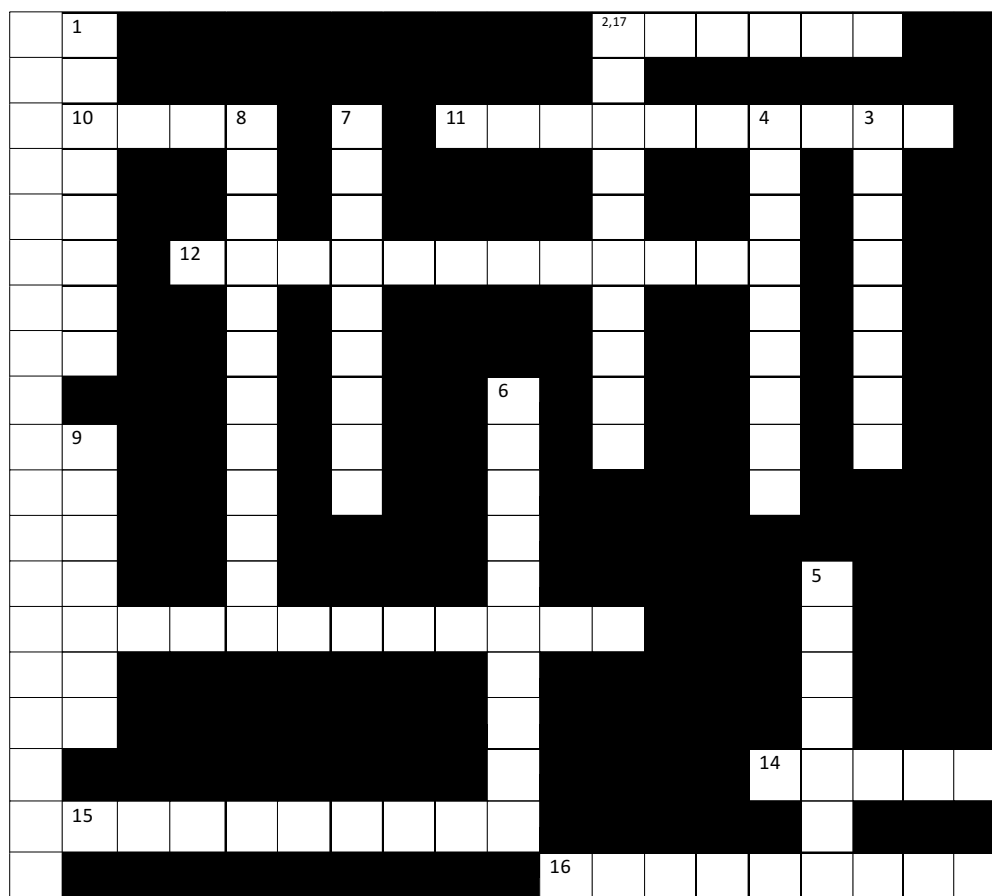
A conventional crossword puzzle with twisted intricacies which only members of MET IOP can solve! GO FIGURE!!

### ACROSS

1. It is the second most important hormone related to blood sugar control
2. This drug is the choice for treatment of meningococcal meningitis
3. His chamber helps you take your WBC count.
4. Finding these hairs you start pulling your own hair.
5. Peppermint oil contains 70% of this.
6. These contribute to the scent of eucalypts, the flavours of cinnamon, cloves, and ginger, the yellow colour in sunflowers, and the red colour in tomatoes
7. No METite can forget her. She is the coolest, she is the best. A strict Jain. She is the most adorable poet.
8. The disease varciella is also known as \_\_\_\_\_
9. This substance is used to sub coat tablets

### DOWN

10. One of our newest Dronacharya. An excellent throw ball player.
11. Synonym for Surface active agent.
12. This term involves the use of sense organs. Not restricted to just pharmacy.
13. Its verb form is a concept in pharmacy, its noun form is a colour.
14. Super rich in experience. He is responsible for our responses. He is our very own brown sir.
15. This person troubles us a lot in the 1st year and continues till the final year. He has an equation behind his name.
16. This is the sacred list. Only the outstanding belong here. Pun indeed.
17. Being honest and fair is his forte. An efficient leader. The only guy from IOP who is allowed to use the lift by every liftman in the entire MET.



## MAZE

### The MET IOP Bhool Bhulaiya jahaan aap dhoondte reh jaaoge!

Here's a bunch of tricky clues that would lead you to one or many words which you can find in the maze! TANGLED!

The words may be placed horizontally, vertically and diagonally both forward and backwards! So don't get too muddled up and search carefully!

#### CLUES:

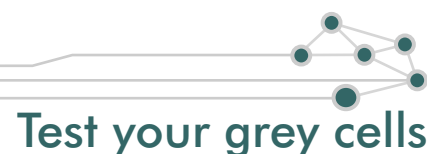
- A lifetime of French Fries and Mc burgers will generate plenty of this in your body
- Anatomical terms which confuse you where to look: up, down, right or left?
- The essence of organic synthesis lies in this process! Sometimes a nightmare for students in the Pharm. Chemistry Lab
- Banned Anti-emetics
- I'm filled with paraffin oil
- Gelling agent
- An accolade which Raheja Ma'am inspires us to win
- Don't you dare try to 'draw' me in the Colo lab.
- I am Benzene; acid is my crown and amino is my shoe. Who am I?
- The scientist responsible for the reagent which helps us synthesis innumerable organic compounds
- A notorious species of bacteria, highly resistant to a variety of antibiotics.
- Ranbaxy lost the patent this year! Which drug?
- Snakes in my dreams made the world of organic chemistry complete!
- "Roti, kapda, makaan" of Pharmacists
- Our three favourite words which we say in one breath and write time and again in the Colo paper
- Yellow yellow dirty fellow!
- You need to reformat your brain to get my arrangement right!
- Jump into 3- Dimensional Space!
- I'm one of the safest drugs you'll find around town! The most commonly used drug too!
- The wittiest soul in MET IOP- \_\_\_\_\_ Ma'am
- Your P'Analysis Textbook, Your Microbiology Agar!
- Our OC Bible
- Drying compounds is impossible without this flask!
- Acetylcholine
- Seven transmembrane helices remind you of?
- Negatively charged entity
- This family of enzymes help you in the process of

phosphorylation.

- We hope that our guinea pig ileum will give us the required reactions to the stimuli so that we can plot this perfectly.
- Medicines which can be marketed

N	W	S	U	C	C	O	C	O	L	Y	H	P	A	T	S	R
X	O	N	E	H	P	O	N	I	M	A	T	E	C	A	T	E
E	N	I	L	H	E	A	D	C	A	P	A	C	E	R	M	F
A	C	E	T	A	M	I	N	O	P	H	E	N	T	E	Y	O
A	B	B	H	A	G	W	A	T	I	P	Q	S	Y	P	R	R
E	D	D	O	R	S	I	V	E	N	T	R	A	L	A	T	M
S	A	B	A	P	K	I	E	O	E	O	M	N	C	P	S	A
U	P	V	A	J	E	Y	L	C	G	D	K	R	H	R	I	T
A	I	O	E	N	A	D	M	L	F	E	D	L	O	E	M	S
N	C	M	O	S	N	C	I	O	A	G	L	T	L	T	E	K
R	R	I	H	P	I	R	E	R	G	T	H	K	I	T	H	Y
E	I	T	R	A	O	G	L	S	P	R	S	J	N	U	C	D
D	C	T	R	T	N	P	U	S	B	A	A	Y	E	B	O	R
C	A	I	A	U	C	C	K	S	T	M	S	P	R	U	E	A
I	C	N	I	L	O	R	E	T	S	E	L	O	H	C	R	N
S	I	G	D	A	D	M	K	I	N	A	S	E	M	H	E	G
A	D	I	A	P	E	T	H	I	E	I	E	H	U	N	T	I
P	E	B	U	T	S	E	L	E	P	H	T	D	I	E	S	R
R	L	A	B	C	O	A	T	I	T	I	U	Q	D	R	A	G
I	E	B	U	T	S	E	L	E	I	H	T	V	C	R	C	I
D	P	N	E	Z	I	R	P	L	E	B	O	N	V	T	U	O
E	O	D	Y	O	B	D	N	A	N	O	S	I	R	R	O	M

# Out of the box



Test your grey cells

## Guess Who?

Here are some students of MET IOP who the teachers have hand-picked and given certain clues about! Special students indeed! Try and Figure out who the clues lead you to! How well do you know your colleagues, juniors and seniors?

### CLUES

1. He is undoubtedly the twin of Jaidev Singh Anand. He's quite an introvert but did a Munnabhai stunt in the university exams.
2. The notorious of the new lot. This specie is generally seen outside the labs and classroom, rarely inside. Future of MET IOP sports, the perfect all rounder.
3. Constantly talking and laughing in the lab but has a very good hand at lab work.
4. A thinking soul. Believes in changing own self first and then change others. You will find this person hidden in the Nest 2011-12.
5. Works hard, studies even harder. Loves to play carom.
6. Named 'Rajdhani Express' by the teachers. Has a unique style of wearing watches on both hands. Won a poster competition at the Rx tech fest recently.
7. Tagged as 'Harry Potter' of MET by our teachers!
8. Raheja Ma'am calls this person 'BBM'
9. The classroom chair is the most comfortable place for her. She is a singer, loves watching Indian television soaps and loves discussing them in class. Was part of the victorious tablet punching machine project.
10. An extremely well blessed brain. Possesses sound practical knowledge and is very famous for a dialogue in between any conversation, '1 sec'.
11. Sketches, sings. Has been the futuristic figure and stars twice, consistent member of the fashion show group, From Nashik.
12. Forte are Pharmaceuticals practical. The 2nd instructor in the lab after the teacher. When your product is in problems do contact this person.
13. Extremely hardworking, very attentive, born to top. Awarded the Best student of the year by IPA.
14. When the teacher talks, even this soul will talk, not to the teacher but to neighbour. This person is known for mumbling constantly in the class and loves to whistle. He is the carom champion.
15. This person is quiet, a nail artist and is known as the water bottle supplier for the entire row in the class.
16. This person looks highly disinterested in class but manages to score well in exams and is known to read newspapers underneath the chair. The person is a quick and monotonous reader.
17. This couple is known as the 'two peas in a pod'. One is very serious about studies and attendance and the other one hates when called by the nickname 'shakalaka'.

**Answers:** 1. Jasraj Singh. 2. Soham Sawant 3. Nilesh Jadhav 4. Juh! Parsana 5. Pravin Billa 6. Hetuk Shah 7. Shayaan Khatib 8. Dhruvi Naik 9. Brinda Mehta 10. Dixit Bagadia 11. Rakhi Modak 12. Ashish Gupta 13. Saniya Malim 14. Annasahab Patil 15. Deepali Desle 16. Iftan Qureshi 17. Namrata Dhumatkar and Shakalaka Dhabolkar

# Shades and Colours

Exquisite renditions!



By Pooja Suthar



By Sameer Patil



By Rakhi Modak

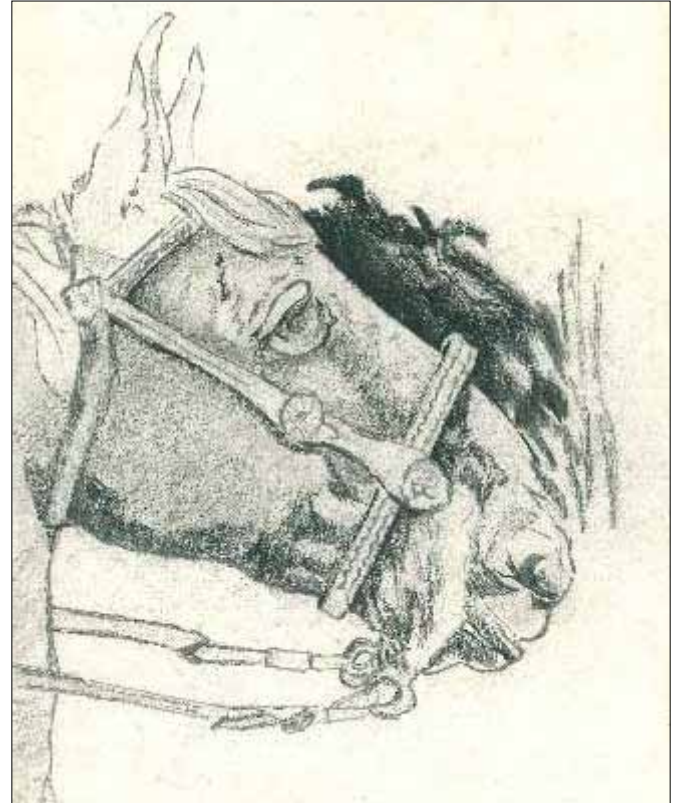


# Shades and Colours

Exquisite renditions!



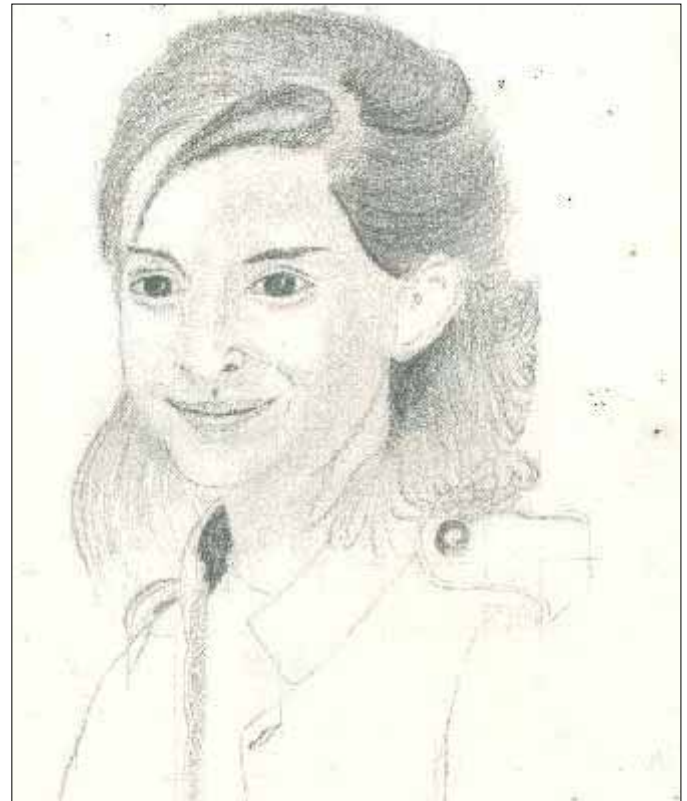
By Pramod Pawar



By Rakhi Modak



By Dr. U. B. Hadkar



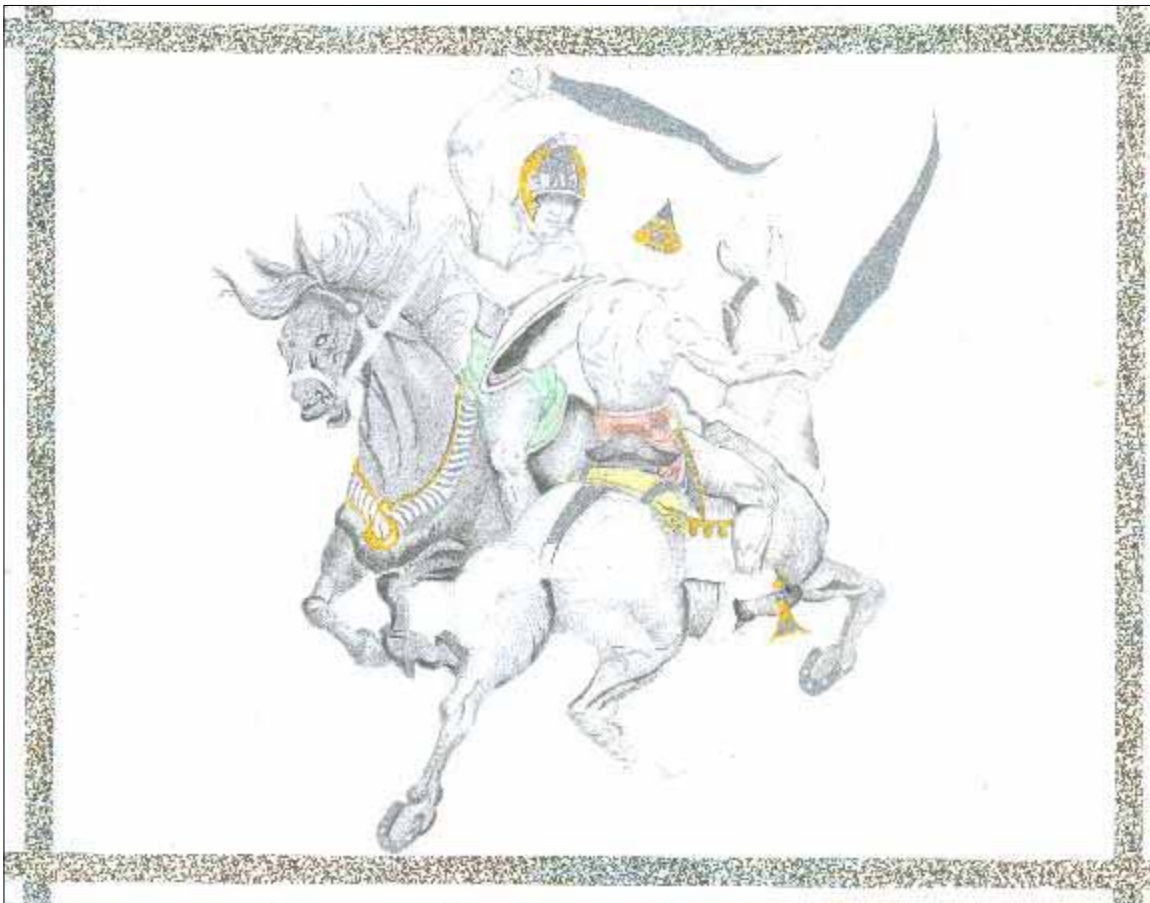
By Sham Patil

# Shades and Colours

Exquisite renditions!



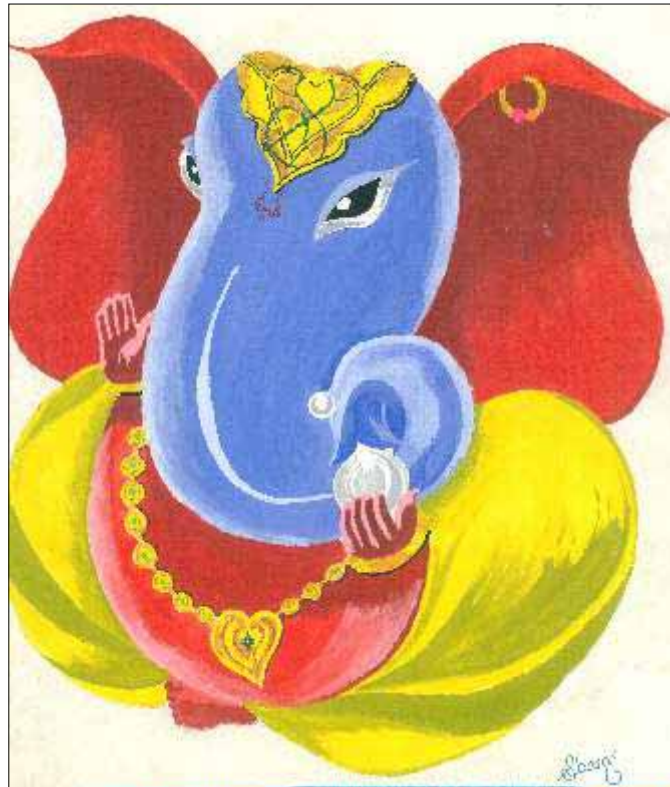
By Sameer Patil



By Sham Patil

# Shades and Colours

Exquisite renditions!



By Sham Patil



By Sameer Patil



## A Wednesday

it was just like any other wednesday,  
tiring but peaceful,  
until terror struck,  
shattered the hearts of Mumbaikars,  
shook the city with a rude war!  
first,  
some thought it was meery makers,  
bursting crackers and making merry  
some thought gang war was on.  
but..... who knew, it was a war  
between us and them.

then came news  
they took hostages of three eminent buildings  
the Nariman house, Trident and Taj,  
whose heritage we all remember.  
but that day the, city's peace was at stake  
people's lives were at stake  
then.....  
came news of a blast,  
came news of whom we lost,  
came news of the nsg commandos,  
came news of their courage.  
and finally.....  
after 60 hours of a battle never so terrifying  
came a pleasant news,  
we won the war,  
we saved the heritage of mumbai.

our eyes had pain and sorrow  
but our hearts bore a relief and joy  
we all prayed,  
never ever does a day like this wednesday  
come to shatter our lives!

**Sahana Ray**  
(F.Y.B.Pharm.)

## Child labour

Help! Help! Was the cry of this child  
Save! Save! Was the cry of his mother  
Shackled in chains,  
Screaming in pain.....  
This child was dragged away  
By the shackles of the inhuman practices  
Ah! Was the cry of the child  
Ha! Was the laugh of the trader  
"he is very efficient"  
was a compliment for him  
But.....  
He was traded for employment in the mines  
he kept on asking "what was the fault of mine"  
Although willing to work....  
But... not this way,  
Then.....  
He was pushed inside,  
Inside the death trap  
"i can't! I can't!" Complained the child  
"you can! You can!" Said the trader.  
Then....  
One night, he decided to flee,  
"hooray!!" He could flee,  
But...  
Unfortunately met with his tragic end  
"come back! Come back!" Cried his mother,  
"i will! I will!" Said the child.  
But alas! His life could not be saved..  
The world moaned for the loss of a bright child  
The trader groaned for the loss of a great labour.

**Sahana Ray**  
(F.Y.B.Pharm.)





## High Adventure

High adventure & bright dream,  
Maps are mightier than they seem,  
Ships that follow leaning stars,  
Red & gold of strange bazaars.  
Ice floes hid beyond all knowing  
Planes that ride where winds are blowing  
Maps are really magic wands,  
For home staying vegabonds.

Gajanan Gunjewad  
(S.Y.B.Pharm.)

## Life

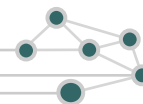
Life's a gift a few lucky ones get,  
Don't waste it by cribbing every moment....  
What tomorrow holds no one knows',  
So enjoy and cherish it before it goes..!!  
Once fallen don't be afraid to again rise,  
Shoot for the moon at least in stars you will shine...  
Never make your heart a bin to dump all worries,  
Make it a treasure house to store sweet fading memories...  
How many breaths you take doesn't count,  
But how many lives u make breathe does mount....  
It is your deeds not luck that play the final charm ,  
Such that even death feels proud to embrace you in its arm..!!!  
Learn to forget, forgive and befriend with ease,  
Because you have just one life to live ...!!!!

Bhavini Panchal  
(S.Y.B.Pharm.)

Doctors give life to a patient by giving them medicines, but life to a  
medicine is given by pharmacists. Proud to be a Pharmacist!

Pravin Siraskar  
(T.Y.B.Pharm.)





## Laughter is the Best Medicine

One of my mother's favorite things to say  
Was, "for crying out loud," used when things did not go her way.  
I want to change that and say with grin  
"Oh, for laughing out loud" exchange a frown for a grin.  
Remember that laughing is good for body and soul and spirit.  
Learn to recognize humour whenever you hear it.  
Or maybe it will come without a word or a sound  
If you look for it in any situation, you'll find it's around.  
Laugh, oh yes, laugh with all of your power  
For your laughter can brighten even the darkest hour.  
Laugh at me or laugh at yourself, too.  
That laughter will help you live happier and longer if you do.  
Now practice with me your heartiest laughter  
And you will give your heart a boost for ever after.

**Yogesh Shukla**  
(S.Y.D.Pharm.)

## IF YOU THINK

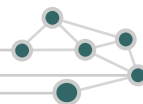
If you think you are beaten, you are.  
If you think you dare not, you don't!  
If you like to win, but think you can't,  
It's almost a inch you won't  
If you think you "I'll lose , you're lost ;  
For out in the world we find  
Success begins with a fellow's will;  
It's all in the state of mind.  
If you think you are out classed, you are,  
You've got to think high to rise,  
You've got to be sure of yourself before  
You can ever win a prize.  
Life's bottles don't always go,  
To the stronger and faster man,  
But sooner or later the man who win's  
Is the man who thinks he can.

**Pooja Parmar**  
(S.Y.D.Pharm.)

## OUR PRINCIPAL

Just like a candle  
Burning in the gloom  
He spreads his light  
To let his pupil bloom  
With will in his aspect  
And zeal in his mind  
He plods to success  
The mannequin so kind  
his aim, so firm  
But tender to bless  
His presence his emblem  
Is of idealness.

**Chandani G.Vishwakarma,**  
(S.Y.D.Pharm.)



प्रेम केल फक्त तुझ्यावर,  
आणि मना पासून केल  
कुणीतरी तुझ्यासाठी झुरतयं  
हे तुला कधीच नाही कळले,  
सुगंधाचे कोडे जसे,  
फुलाला नाही उमगत,  
याप्रमाणे मी तुझ्यावर प्रेम करते,  
हे तुला अजूनही नाही समजत .....

एड्ड वेळ अशी येईल की,  
मी सजलेले असेन आणि,  
तू ही सजलेला असशील,  
माझ्यावर फुले पडतील आणि,  
तुझ्यावरही फुले पडतील,  
पण फरक मात्र एवढाच असेल की,  
तू लग्नमंडपात असशील आणि,  
मी स्मशानभूमीत असेन !!!

अति गुंतण कुणात....  
बरच नाही....  
गुंता तो....  
सुटता सुटत नाही....  
फक्त उरतात त्या वेदना.....  
पण त्या वेदना विसरायलाही....  
परत,मन मात्र गुंतत नाही.....

भरभरून दिलेस काही,  
ते सार अनामिक होत  
पण तू दिलेस दुःख मात्र,  
तुझ्यापेक्षाही प्रामाणिक होत....

नदी इकडे तिकडे फिरत शेवटी,  
सागरालाच जाऊन का मिळते?  
ज्याला हे कोडे उलगडे,  
त्यालाच प्रेमाची खरी किंमत कळते!!!

झेपेल तेवढेच दुःख,  
देव आपल्याला देतो,  
दिलेलं दुःख संपल की मग,  
आपल्यालाच नेतो!!!

प्रियांका भोईर  
(फायनल व्हाय. बी.फार्म)

जिन्दगी हर पल नये रंग दिखाती हैं  
कई सपने सवांरती, कई तोड जाती हैं  
कई सारे सबक हमे सिखा जाती हैं।

आगे क्या करना,न करना बताती है,  
छोटी -छोटी बातों का ज्ञान करा जाती हैं  
सच और झूठ में फर्क भी बताती है।

जीवन में कई बार दुविधा के पल होते हैं  
जब हम दोराहे पर अकेले खड़े होते हैं  
एक राह हम सच्ची और दूसरी झूठे से भरी होती हैं

सच का रास्ता लंबा, कठिनाई भरा होता हैं  
झूठ का रास्ता आसान, प्रलोभन भरा होता हैं  
उस वक्त हमारे संस्कारों की परीक्षा होती ।

सच का रास्तो अपनाते है, कष्ट जरूर होता हैं  
पर मन में सुकून और खुद पर गर्व होता हैं  
झूठे का रास्ता मखमली पर  
अंत मे दर्द देता है।

तुम क्या चुनते हो, यह तुमको सोचना हैं  
कृत्रिम बल्बों से जगमगाती रंगीन रात चाहिये हैं  
या सत्य की राह चलकर रंगो भरा इंद्रधनुष चाहिये है।

आभा दोशी  
प्रिंसिपल



आयुष्य खुप सुंदर आहे,  
सोबत कुणी नसल तरी,  
एकट्यानेच ते फुलवत रहा,  
वादळात सगळ वाहून गेल,  
म्हणून रडत बसू नका  
वेगळ अस काही,माझ्यात खास नाही अस म्हणून उदास होऊ नका

मृगात कस्तुरी आहे,  
फुलात गंध आहे,  
सागराकडे अथांगता आहे.  
माझ्याकडे काय आहे, अस म्हणून रडू नका,  
अंधाराला जाळणारा एक सुर्य तुमच्यातही लपला आहे.

आव्हान करा त्या सुर्याला...  
मग उगवेल तो तुमच्या आयुष्यात नवीन क्षितिज,  
आंधारमय रात्र संपवून सोनेरी किरणांनी सजून,  
मग रोजच उगवेल एक नवी सकाळ,

उत्साह धेयाने भरून म्हणून....  
आयुष्य खुप सुंदर आहे,  
सोबत कुणी नसलं तरी  
एकट्यानेच ते फुलवत रहा .....

**माधुरी बबन खराडे**  
(एफ.व्हाय.डी.फार्म)

## जुळता जुळता

जुळता जुळता  
रेशीम गाढ सुटली गेली,  
वा-यावर चालता चालता,

सोबत हवस वाटणार,  
सोबत हवस वाटणार,  
नात वेढल गेल ते,  
वेलीवर झुलता झुलता

जुळता जुळता  
हवस वाटणार धुक,  
काळोख्यात बदलून गेल,  
भुतकाळाच्या रूपाने ,  
जस,सार भविष्य उलगडून गेल

जुळता जुळता  
असणा-या शब्दांच,  
भानच विसरून गेलो,  
एकटेपणाच्या वादळाच वार,  
एकवटून समोर आल,

जुळता जुळता  
सारं कस जुळून गेलं,  
वटवृक्षाच्या मुलासारख,  
मनात खोलवर,  
घरट करून गेल,

**विनोद रामदास मानकुमरे**  
(फायनल व्हाय. बी फार्म)



## शब्दांची तुटकता

कवितेच्या ओळी पूर्ण करता करता ,  
शब्दांची तुटकता कधी भासली नाही,  
विचार करण्याच्या वेळी,  
मनाने कधी मर्यादा ठेवली नाही,  
विचार, पानावर लिहितांना शब्दांची तुटकता कधी भासली नाही

जुन्या कवितेच्या ओळी, नव्याने मनात फुलतात,  
स्वप्नरूपी मनात शब्द संध गतीने डुलतात  
स्वप्नाच्या दुनियेतला पाय कधीच निघाला नाही,  
स्वप्न, पानावर लिहितांना शब्दांची तुटकता कधी भासली नाही

निसर्गाने हाक मारली अन् निसटते मन वा-यावर झुलत गेले,  
हिरवळीच्या दवर्बिंदू सारखे मन हे पानावर झुलत राहिले  
निसर्ग सौंदर्य पाहतांना डोळ्यात भान उरल नाही,  
सौंदर्य पानावर लिहितांना शब्दांची तुटकता कधी भासली नाही.

शब्दांची रचना करता करता पानावर जागा ना उरली  
हृदयाच्या एका ठोक्याची शब्द रचना, एका पानावर पण नाही व्यापली.....

विनोद रामदास मानकुमरे  
(फायनल व्हाय.बी.फार्म)

# Photography





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## Page 3 Glitz and Glamour

### IPA Student Cell Members



L to R- Ms. Shraddha Shah, Ms. Shivani Gangar, Ms. Sunaina Bhaskar, Mr. Rahul Lad, Mr. Rushil Bhatt, Ms. Neha Karekar, Ms. Ruchita Kothari.



Celebrating Traditional Day



Memories of the Staff Picnic



Editorial Committee at work on 2012 issue of 'The Nest'



## Page 3 Glitz and Glamour

Final Year B.Pharm.



Final Year D.Pharm.



# Non-Teaching Staff



1st row (L to R)- Mr. Gurnath Pednekar, Mr. Anil Chavan, Mr. Sudhir Ayare, Mr. Vijay Gawde,  
Mr. S. D. Bhosale, Dr. Abha Doshi, Dr. U. B. Hadkar, Mrs. Manisha Vaidya, Mrs. Priya Sawant,  
Mrs. Usha Bhansode, Mrs. Mainsha Alat, Mrs. Manisha Barve.  
2nd row (L to R)- Mr. Milind Damle, Mr. Sanjay Katkar, Mr. Ajay Mali, Mr. Dinesh Khanolkar, Mr. Pradeep Jadhav,  
Mr. Mahendra Surve, Mr. Dattaram Bhure, Mr. Pramod Pawar, Mr. Gurnath Pednekar, Mrs. Asavari Hadkar.  
3rd row (L to R) - Mr. Yuvraj Thackre, Mr. Appa Patade, Mr. Pramod Karbhari, Mr. Prashant Rane, Mr. Ghansyam Kambli.

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Mr. J. G. Irani, Mr. A. Shrivastava, Mr. S. Mistry  
Mr. P. Gangan, Ms. A. Damey, Mr. P. Govekar  
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Soham Sawant (F.Y.B.Pharm.)  
Swamini Bhogale (T.Y.B.Pharm.)

Last but not the least the MET IOP Staff and the IPA members from our institute who constantly helped and supported the Student Council.



## A Cut Above the Rest





## A Cut Above the Rest







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