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CATALYST

Chemistry News Letter

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New faculty



Ms. Anagha B. Patil

Teachers and Students Achievements

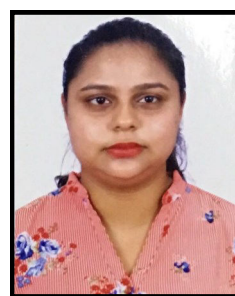
The first batch under autonomous courses passed out this year. A total of 78 students had offered chemistry out of which Miss Amanda Pinheiro stood first with a CGPA score of 9.18, Master Vanford Fernandes stood second with a CGPA score of 9.12 and Miss Abigail Pinheiro stood third with a CGPA score of 9.05. Currently these students are pursuing their Post Graduate studies at the Department of Chemistry, Goa University.



Amanda Pinheiro



Vanford Fernandes



Abigail Pinheiro

Teachers' and students' activities

The department of Chemistry of Parvatibai Chowgule College conducted a workshop entitled 'Fun with Chemistry' for the specially abled students of Chetana Educational trust's School cum rehabilitation centre, Curchorem Goa on 10/8/18.

Three faculty of our department, Dr. Manjita Porob, Mrs. Padmini Raiker and Mr. Anurag Naik along with the 2 students of third year Chemistry, Mr. Nimay Kamat and Mr. Shubham Gaude designed a fun chemistry module for the specially abled children. The said teachers and students had designed and tested 7 such experiments for the kids which would appear magical due to



Mr. Anurag M. Naik participated in the one-day workshop on "Instrumentation, Application and Maintenance of Instruments" at Dhemp College of Arts & Science, Miramar-Goa.

A Two-day workshop on "Sophisticated Instruments in Chemical Analysis" was conducted by Mr. R. Girijan from 06.09.18-07.09.18 for the students of final year chemistry. The workshop was conducted under Star-DBT College Scheme and Dr. Lactina Gonsalves was the convener of the same.

Dr. Sachin Kakodkar organized a talk by Prof. Sheshanath Bhosale, UGC Professor, Department of Chemistry Goa University as a part of Chemistry Lecture series under the Star-DBT College Scheme.

Chemistry Poem

Once a chemist always a chemist

No plans to land in chemistry world
but, landed in the life of lab.
All I learn is increase in rate of reaction.
All I earn is increase in rate of my life.
Once a chemist always a chemist.

Just like the single drop colour change
volatility of reactions changes my action.
Tedium nature of mine transformed,
inculcating accuracy in my daily life.
Once a chemist always a chemist.

Not an easy go to work in lab
to promulgate and get result fab.
Zeal to reach the end point.
Gay to find and get the melting point.
Once a chemist always a chemist.

Chemistry creates colourful wonders
yet; the colour seems too gloomy
when ones onus is incomplete.

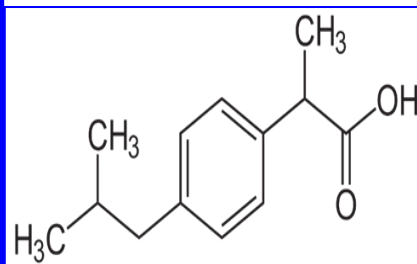
Now, neutral mind of mine excites like electron
ready to emit light and not resume to ground state.
Once a chemist always a chemist.

- Micky Heinkham, SYBSc

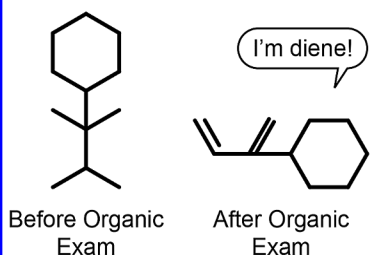
Ibuprofen

Ibuprofen is a propionic acid derivative and **nonsteroidal anti-inflammatory drug (NSAID)** with anti-inflammatory, analgesic, and antipyretic effects (fever reducing). The World Health Organization (WHO) includes ibuprofen in a list of the minimum medical needs for a basic healthcare system known as its "Essential Drugs List."

Ibuprofen also known as 2-(4-Isobutylphenyl)propanoic acid; with molecular formula $C_{13}H_{18}O_2$ has a molecular weight of 206.285 g/mol. It is used for symptomatic treatment of



Chemistry Jokes



Optimist



**The Glass
is Half
Full**

Pessimist



**The Glass
is Half
Empty**

Chemist



**The Glass
Contains
50% H₂O(l)
39% N₂(g)
10.5% O₂(g)
.44% Ar(g)
.06% CO₂(g)**

Source: <https://letterpile.com>

Did you know????

Liquid oxygen is blue.
Fish scales are a common lipstick ingredient.
Some lipstick contains lead acetate or sugar of lead.
This toxic lead compound makes the lipstick taste sweet.

The average shot of espresso contains less caffeine than a typical cup of coffee.
Coca Cola originally contained cocaine.

Lemons contain more sugar than strawberries, for the same mass.

Goldfish eyes perceive not only the visible spectrum, but also infrared and ultra-violet light.

Source: <https://www.thoughtco.com/fun-and-interesting-chemistry-facts-p2-609440>

rheumatoid arthritis, juvenile rheumatoid arthritis and osteoarthritis. It may be used to treat mild to moderate pain and for the management of menstrual cramps (dysmenorrhea). It is also used to reduce fever. It has been used with some success for treating ankylosing spondylitis, gout and psoriatic arthritis. It may reduce pain, fever and inflammation of pericarditis.

Ibuprofen is not suitable for people who are sensitive to aspirin or any other NSAID; have, or have had, a peptic ulcer; have severe heart problems. People having liver, kidney problems, asthma or heart problems should use this drug cautiously.

The WHO has included it in the list of "Essential Drugs List".

Article by **Alicia Menezes, SYBSc**

Source:
<https://www.medicinenet.com>

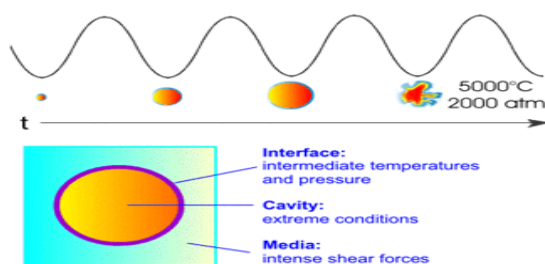
Sonochemistry

Sonochemistry is the application of ultrasound to chemical reactions and processes. The mechanism causing sonochemical effects in liquids is the phenomenon of acoustic cavitation. The following sonochemical effects can be observed in chemical reactions and processes:

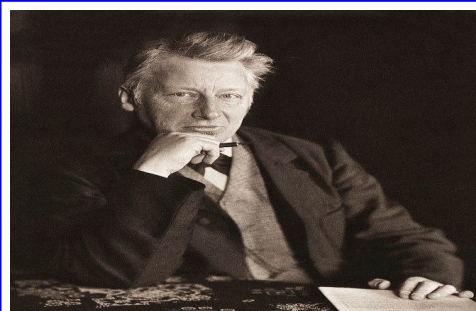
- A. increase in reaction speed
- B. increase in reaction output
- C. more efficient energy usage sonochemical methods for switching of reaction pathway
- D. performance improvement of phase transfer catalysts
- E. avoidance of phase transfer catalysts
- F. use of crude or technical reagents activation of metals and solids
- G. increase in the reactivity of reagents or catalysts
- H. improvement of particle synthesis coating of nanoparticles

By Priyanka Birajdar, S. Y. B. Sc.

Source: <https://www.hielscher.com/sonochem>



First Nobel Laureate in Chemistry



Jacobus Henricus "Henry" van't Hoff, Jr. was a Dutch physical chemist. A highly influential theoretical chemist of his time, van't Hoff was the first winner of the Nobel Prize in Chemistry. His pioneering work helped found the modern theory of chemical affinity, chemical equilibrium, chemical kinetics, and chemical thermodynamics. In his 1874 pamphlet van 't Hoff formulated the theory of the tetrahedral carbon atom and laid the foundations of stereochemistry. In 1875, he predicted the correct structures of allenes and cumulenes as well as their axial chirality. He is also widely considered one of the founders of physical chemistry as the discipline is known today.

By Ms. Shweta Thakkarkar, S.Y. B. Sc. (Chemistry)

<https://www.toppr.com>

Green Chemistry

Green chemistry (sustainable chemistry): Design of chemical products and processes that reduce or eliminate the use or generation of substances hazardous to humans, animals, plants, and the environment. The overarching goals of green chemistry—namely, more resource-efficient and inherently safer design of molecules, materials, products, and processes—can be pursued in a wide range of contexts.

The twelve principles of green chemistry are:

Prevention. Preventing waste is better than treating or cleaning up waste after it is created.

Atom economy. Synthetic methods should try to maximize the incorporation of all materials used in the process into the final product

Less hazardous chemical syntheses. Synthetic methods should avoid using or generating substances toxic to humans and/or the environment.

Designing safer chemicals. Chemical products should be designed to achieve their desired function while being as non-toxic as possible.

Safer solvents and auxiliaries. Auxiliary substances should be avoided wherever possible, and as non-hazardous as possible when they must be used.

Design for energy efficiency. Energy requirements should be minimized, and processes should be conducted at ambient temperature and pressure whenever possible.

Use of renewable feed-stock. Whenever it is practical to do so, renewable feed stocks or raw materials are preferable to non-renewable ones.

Reduce derivatives. Generation of unwanted derivatives.

should be minimized or avoided if possible; as it may generate additional waste.

Catalysis. Catalytic reagents that can be used in small quantities to repeat a reaction

Design for degradation.

Chemical products should be designed so that they do not pollute the environment; when their function is complete, they should break down into non-harmful products.

Real-time analysis for pollution prevention. Analytical methodologies need to be further developed to permit real-time, in-process monitoring and control before hazardous substances form.

Inherently safer chemistry for accident prevention.

Whenever possible, the substances in a process, and the forms of those substances, should be chosen to minimize risks such as explosions, fires, and accidental releases.

By Ms. Deanne Pereira, S. Y. B.Sc. (Chemistry)

<https://www.organic-chemistry.org>

Freshers' party

The students of third year and second year organized Freshers' party for the first year students on 25th July 2018. It was for the first time in the history of the department of chemistry that students had organized such a function. The function was a fun fare which included different games for the first year students as well for the teachers. All the students had a great fun. during the event.



Sad Demise



Dr. Alfred Synesio Antao, ex-faculty of the Department of Chemistry expired on 16/08/2018. He was very much proactive and dedicated staff and was running Entrepreneurship Development programme. He had also designed Pharmaceutical and Environmental papers for Goa University. He had been recently retired from his services in July 2013. May his soul rest in peace.

Chemistry Quiz

1. Which is the soft silvery metallic element which ionizes easily when heated or exposed to light and is present in atomic clocks?

- cesium
- sodium
- potassium
- barium

2. Which is the most commonly used bleaching agent?

- alcohol
- chlorine
- sodium chloride
- carbon dioxide

3. What happens when a drop of glycerol is added to crushed KMnO_4 spread on a paper?

- there is a crackling sound
- there is a violent explosion
- there is no reaction
- the paper ignites

4. Which is the purest form of iron?

- cast iron
- steel
- pig iron
- wrought iron

5. Which of the following is not a form of carbon?

- soot
- hematite
- graphite
- charcoal

6. Acid rain is caused by

- CO and CO_2
- SO_2 and O_2
- SO_2 and NO_2
- NO_2 and O_2

7. Which alkaloid is found in coffee, cocoa and cola nut?

- cocaine
- morphine
- tannin
- caffeine

8. Ink is prepared from

- dye
- tannin
- starch
- latex

9. Who produces formic acid?

- white ants
- cockroaches
- red ants
- mosquitoes

10. Stains of rust on clothes can be removed by

- alcohol
- H_2O_2
- oxalic acid
- petrol
- hydrofluosilicic acid

By. Crystal Mascarenhas

Editorial Team: Asst. Prof. Ms. Padmini C. Raiker, Dr. Manjita Porob (Head, Department of Chemistry) and Asst. Prof. Mr. Anurag Naik.

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