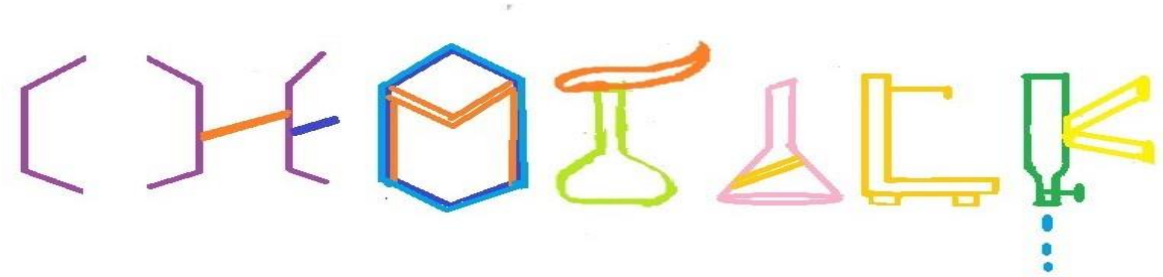
A.P.C.Mahalaxmi College For Women

Thoothukudi.

Department of Chemistry



A Students'Magazine

Edition I,Volume III

04/04/2019

This edition brings an article with interesting facts about Chemistry. Besides this, Noble Laureates and Modern Analytical Chemistry books are also discussed.

From Editor's Desk

Dear Readers,

As our Government has strongly enforced plastic ban, we have also tried to take a step towards environmental protection by publishing a novel method of plastic degradation. To give a new perspective of chemistry to readers, we have introduced chemfiction, i.e. a fictional story on chemistry. We assure that this edition will satisfy the expectation of the readers.

- Editor

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DEPARTMENTAL ACTIVITIES

GUEST LECTURE:

A Guest lecture was conducted at 11.00 am on 05.12.18 Dr. Ismail, Rtd Professor of Chemistry, Dr.M.Kamalutheen, Head and Assistant Professor of Chemistry, Sadakathullah Appa College, Tirunelveli, addressed the students on value based education and career guidance.

On behalf of the Chemistry Association, a guest lecture was organised on 30.01.19. An MOU was signed with DCW Ltd, Sahupuram Mr. Kesavan, Deputy Manager, DCW was invited to deliver a talk on "Electrochemistry".

A Guest lecture was organised on 11.02.19, Ms.Marieswari, Training Head Tamil Nadu Water Investment Company was the Chief Guest. She delivered a motivational talk on career guidance and personality development.

INTERNATIONAL CONFERENCE:

An International conference was organized on 20th and 21st December 2018 on "Recent Trents in Multidisciplinary Research" (ICRTMDR) in collaboration with IFERP.

HEALTH AWARENESS PROGRAMME:

A Health Awareness Programme was organized on 07.02.19 Dr.Banu, Anasthetist was invited as the Chief Guest. She delivered a lecture on "Health is Wealth".

ALUMNAE REPORT:

On behalf of the Chemistry Association, an alumni meet was conducted on 22.12.2018. All the outgone students 2017-2018 batch participated enthusiastically. Parents were also participated.

DRAWING COMPETITION

On behalf of Chemistry Association Drawing Competition was conducted on 18.03.19 a theme was "Aids Awareness" and prizes were distributed to the winners.

ACHIEVEMENTS

Dr D.Shunmuga Priya, Assistant Professor of chemistry, Dr P.Yokeswari Nithya, Assistant Professor of Chemistry , Dr J. Clara Jeyageetha, Assistant Professor of chemistry acted as session chair in the International Conference on recent Trends in Multi- Disciplinary Research (ICRTMDR) on 20th and 21st December 2018.

Dr D.Shunmuga Priya Assistant Professor of Chemistry, won the Best Paper Award in the International Conference on Recent Trends in Multi- Disciplinary research (ICRTMDR).

CHEM INNOVATION
Chemists Create Flexible Polymer Gels From Caffeine

-S.Aishwarya(I B.Sc.)

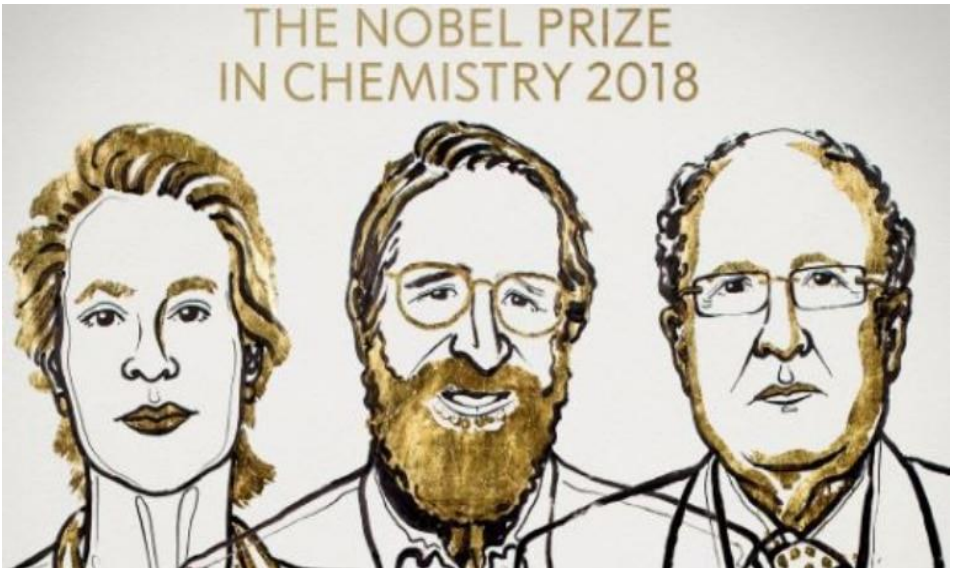
Caffeine is well-known for its ability to help people stay alert, but a team of researchers at MIT and Brigham and Women's Hospital has now come up with a novel use for this chemical stimulant-catalyzing the formation of polymer materials. Using caffeine as a catalyst, the researchers have devised a way to create gummy, biocompatible gels that could be used for drug delivery and other medical applications.

"Most synthetic approaches for synthesizing and cross-linking polymeric gels and other materials use catalysts or conditions that can damage sensitive substances such as biologic drugs. In contrast, here we used green chemistry and common food ingredients," says Robert Langer, the David H. Koch Institute Professor at MIT and one of the study's senior authors. "We believe these new materials could be useful in creating new medical devices and drug delivery systems."

Drugs carried by this kind of material could be chewable or easier to swallow, the researchers say. Making polymer gels usually requires metal catalysts, which could be hazardous if any of the catalyst remains in the material after the gel is formed. The MIT team wanted to come up with a new way to make gels using catalysts and starting materials that are based on food products and other materials that are safe to ingest.

NOBLE LAUREATES IN CHEMISTRY

S.Amutha (I B.Sc.,)



"**This year's Nobel Laureates in Chemistry have been inspired by the power of evolution and used the same principles -- genetic change and selection -- to develop proteins that solve mankind's chemical problems**,"

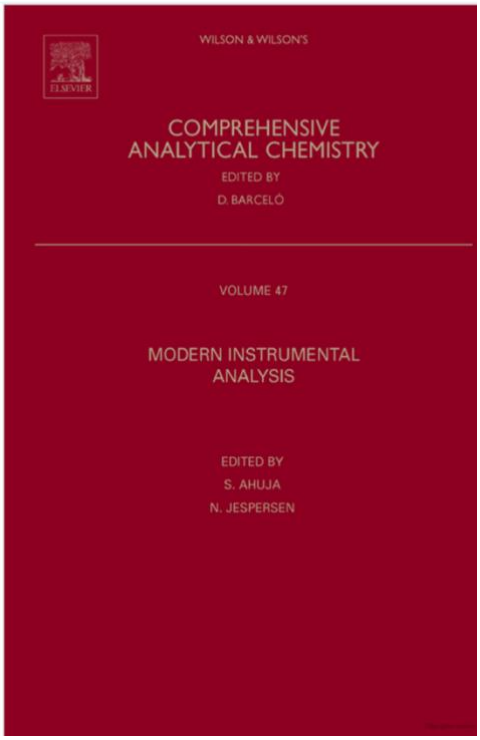
One half of this year's Nobel Prize in Chemistry is awarded to **Frances H. Arnold**. In 1993, she conducted the first directed evolution of enzymes, which are proteins that catalyse chemical reactions. Since then, she has refined the methods that are now routinely used to develop new catalysts. The uses of Frances Arnold's enzymes include more environmentally friendly manufacturing of chemical substances, such as pharmaceuticals, and the production of renewable fuels for a greener transport sector.

The other half of this year's Nobel Prize in Chemistry is shared by **George P. Smith** and **Sir Gregory P. Winter**. In 1985, George Smith developed an elegant method known as phage display, where a bacteriophage – a virus that infects bacteria – can be used to evolve new proteins. Gregory Winter used phage display for the directed evolution of antibodies, with the aim of producing new pharmaceuticals. The first one based on this method, adalimumab, was approved in 2002 and is used for rheumatoid arthritis, psoriasis and inflammatory bowel diseases. Since then, phage display has produced anti-bodies that can neutralise toxins, counteract autoimmune diseases and cure metastatic cancer.

Eagle's View

Modern Instrumental Analysis

-P.M.Kavitha (III B.Sc)



Modern Instrumental Analysis covers the fundamentals of instrumentation and provides a thorough review of the applications of this technique in the laboratory. It will serve as an educational tool as well as a first reference book for the practicing instrumental analyst. The text covers five major sections:

1. Overview, Sampling, Evaluation of Physical Properties, and Thermal Analysis
2. Spectroscopic Methods
3. Chromatographic Methods
4. Electrophoretic and Electrochemical Methods
5. Combination Methods, Unique Detectors, and Problem Solving

Each section has a group of chapters covering important aspects of the titled subject, and each chapter includes applications that illustrate the use of the methods. The chapters also include an appropriate set of review questions.

* Covers the fundamentals of instrumentation as well as key applications
* Each chapter includes review questions that reinforce concepts
* Serves as a quick reference and comprehensive guidebook for practitioners and students alike

JUST FOR FUN -M.Vijayalakshmi(I B.Sc.Chemistry)

Q: What do you do with a sick chemist?
A. First you try to helium, then you try to curium, but if this fails then you have to barium.

Q: What is the name of the molecule CH_2O?
A: Seawater

Q: What is the dullest element?
A: Bohrium

CHEM FACT

-G.SivaSakthi (I B.Sc.)

- **Every hydrogen atom in your body is likely to be 13.5 billion years old, since they were created at the birth of the universe**

At ground zero, during the Universe's singularity, the very first chemical element was hydrogen. All the others followed by fusing hydrogen into helium, which then fused into carbon and so on. Approximately 73% of the mass of the visible universe is in the form of hydrogen. Helium makes up about 25% of the mass, and everything else represents only 2%. By mass, hydrogen and helium combined make up far less than 1% of the Earth.

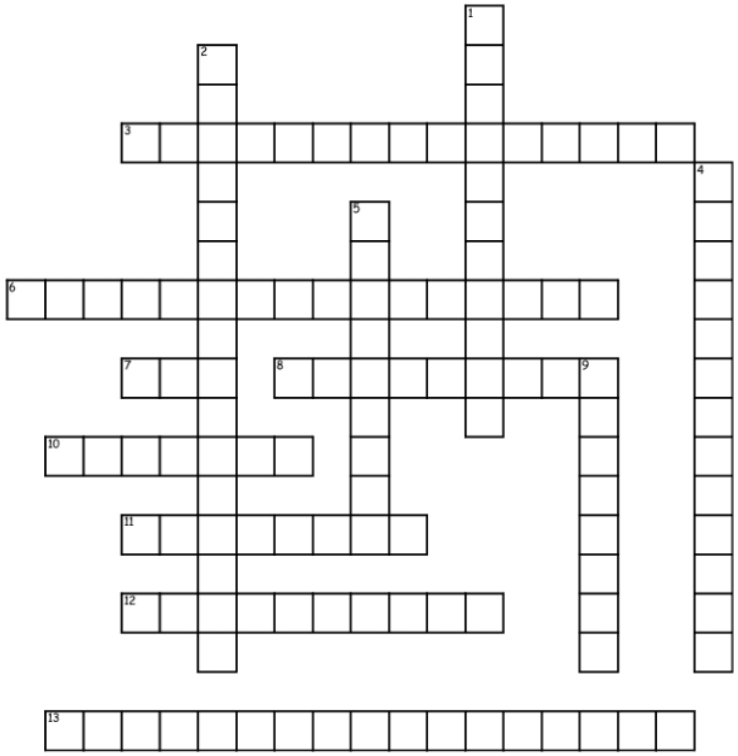
- **Lightning strikes produce Ozone, hence the characteristic smell after lightning storms**

Ozone, the triple oxygen molecule that acts like a protective stratospheric blanket against ultraviolet rays, is created in nature by lightning. When it strikes, the lightning cracks oxygen molecules in the atmosphere into radicals which reform into ozone. The smell of ozone is very sharp, often described as similar to that of chlorine. This is why you get that "clean" smell sensation after a thunderstorm.

➢ DNA is a flame retardant

Coating cotton cloth with DNA, researchers found the genetic material reduced the fabric's flammability. When it's heated, the phosphate from DNA produces phosphoric acid which replaces the water in cotton fibers as a flame-retarded residue. The bases, which contain nitrogen, react to produce ammonia which inhibits combustion.

CHEMYSTERY
-M.Uma Devi (II B.Sc.,)



Across

3. A combination of chemical symbols and numbers to represent a substance
6. The minimum amount of energy required to start a chemical reaction
7. The law that states that energy cannot be created or destroyed but can be change another
8. A substance that slows down or stops a chemical reaction
10. The substance that forms in a chemical reaction
11. A substance that changes the rate of a chemical reaction without being used up or changed very much
12. A chemical reaction in which heat is released to the surroundings
13. 1 element replaces another element in a compound

Down

1. A chemical reaction that requires heat
2. A representation of a chemical reaction that uses symbols to show the relationship between the reactants and the products
4. A compound decomposes into 2 or more simpler substances
5. 2 or more substances combine to form a new compound
9. A substance or molecule that participates in a chemical reaction

Please send your answers to chemtalk123@gmail.com. Cash award Rs.100 will be given to puzzle solver. The winner of the previous Chemystery puzzle is G.Bhuvaneshwari (III B.Sc.).The correct answers are 1.Cacium carbonate(tooth paste) 2.Sodium chloride(salt) 3.Sodium Sulphate(Washing powder) 4.Sodium bicarbonate(baking soda) 5.Potassium chlorate(match stick) 6.Acetic acid(vinegar) 7.Sodium Lauryl sulphate(Shampoo) 8.Propylene glygol(ink) 9.Sodium saccharin(Colgate) 10.Sodium hydroxide(washing powder)11.Sodium meta borate(hit)12.Sodium benzoate(preservative in tooth paste)