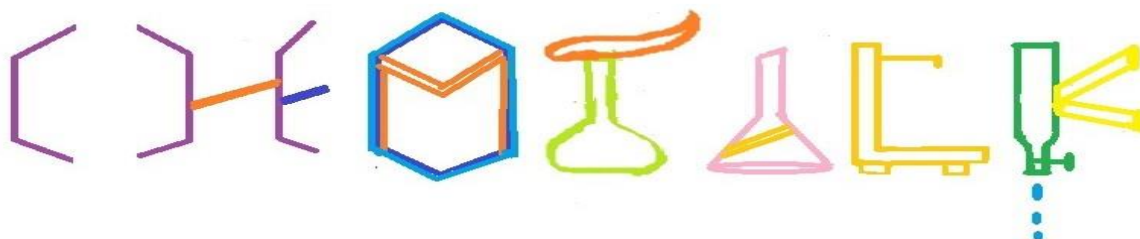


CHEMTALK 2020

A.P.C.Mahalaxmi College For Women

Thoothukudi.

Department of Chemistry



A Students' Magazine

Edition I, Volume V

04/04/2020



This edition brings to you an interesting article about current issue -Coronavirus and statistics of coronavirus 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

Editorial

Editor :**Dr.H.KohilaSubathra Christy**, M.Sc., M.Phil.,Ph.D.,
Head and Assistant Professor of Chemistry

Associate Editors :

Dr.D.ShanmugaPriya, M.Sc., M.Phil., Ph.D
Assistant Professor of Chemistry
Ms.P.Gurulakshmi, M.Sc.,M.Phil.,B.Ed.,
Assistant Professor of Chemistry

Executive Editors :

A.Sudha(III B.Sc.), **B.SahilaBanu**(III B.Sc.)
G.SivaSakthi (II B.Sc.), **S.Amutha** (II B.Sc.)
V.RanjithaSelva Mari(I B.Sc.), **M.Petchiammal**(I B.Sc.)

Editorial Board :

Dr. P. Yokeswari Nithya, M.Sc., M.Phil., Ph.D., Asst. Prof. of Chemistry
Dr. S. Sankaravadivu, M.sc.,Ph.D., Asst. Prof. of Chemistry
Dr.C.StellaPackiam, M.Sc., Ph.D., Asst. Prof. of Chemistry
Dr. J.Clara Jeyageetha, M.Sc.,Asst. Prof. of Chemistry
Mrs. S.Kalaiarasi, M.Sc., M.Phil., B.Ed.,Asst. Prof. of Chemistry
Dr.T.Akkini Devi, M.Sc.,M.Phil.,Ph.D., Asst. Prof. of Chemistry

Publisher :**Department of Chemistry**,
A.P.C.Mahalaxmi College for Women, Thoothukudi.
Email : chemtalk123@gmail.com

DEPARTMENTAL ACTIVITIES

GUEST LECTURE:

On behalf of Chemistry Association, a guest lecture was conducted at 11.00 am on 9th January 2020. Dr. Rajamohan, Deputy manager, HWP, Thoothukudi was the Chief guest. Dr. Murugesan and Dr. Rajeshwari, Scientist, HWP were also invited. Dr. Rajamohan delivered a special lecture on "Cooling water treatment programmes in Heavy water plant".

On behalf of Chemistry Association, a guest lecture was conducted at 11.00 am on 11.02.2020. Dr. Manoharan Ramaswamy, Director, Merck, Pennsylvania, USA, was the invited chief guest. Dr. Manoharan Ramaswamy delivered a special lecture on "Molecule to Medicines". He explained about the normal human cell and its functions, basic principles of DNA structure and its synthesis.

SPECIAL DAY PROGRAMME:

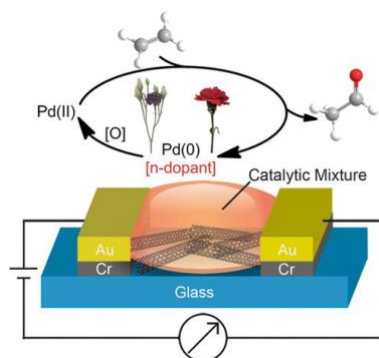
On behalf of Chemistry Association and in connection with the celebration of International Periodic table day, a quiz competition was conducted at 1.30pm on 20th December 2019 by A.Dhanalakshmi, IM.Sc. student. Five teams of ten students from our department participated enthusiastically in this quiz. On behalf of Chemistry Association and in connection with the celebration of National Science day, a collage competition was conducted at 1.30pm on 4th March 2020. The topic given was "Women in Science". Ten students from various disciplines participated enthusiastically and showcased their talents. Mrs. S. Kalaiarasi and Dr. J. Clara Jeyageetha judged the collage posters. K. Shanmuga Priya, I B.Sc., Maths won I prize and M. Syed Subahani, I B.Sc., Chemistry won II prize. Dr. H. Kohila Subathra Christy, Head and Assistant Professor of Chemistry has given prizes to the winners.

INTERNATIONAL CONFERENCE:

An International conference was organized on 27th and 28th February 2020 on "Recent Trends in Multidisciplinary Research" (ICRTMDR) in collaboration with IFERP

ETHYLENE SENSOR COULD HELP MONITOR PLANT HEALTH

To control flowering and fruit ripening, plants release the gaseous hormone ethylene. Environmental conditions, including drought, salinity and pathogens, can also cause levels of the hormone to fluctuate. Therefore, monitoring ethylene's release in real time could provide a farmer with important information about a plant's development and health. Now, researchers reporting in ACS Central Science have developed an easy-to-use, robust sensor that can do just that.



Because of the key role ethylene plays in plant health, the agricultural industry is interested in monitoring the hormone. Early detection of changes in the release of this gas could allow farmers to take preventative actions that restore plant health, reducing crop losses. However, existing sensors have limitations that make them impractical for use in the field. Timothy Swager, Darryl Fong and colleagues at the Massachusetts Institute of Technology wanted to make a sensor that could sensitively detect changes in ethylene levels.

The new sensor contains a network of single-walled carbon nanotubes (SWCNTs) on a piece of glass, sandwiched between gold electrodes. The researchers placed a catalytic mixture containing palladium on top of the SWCNTs. In a chemical reaction known as Wacker oxidation, the palladium catalyst converted ethylene gas to acetaldehyde. During this reaction, palladium changed its oxidation state and interactions with the SWCNTs, altering their electrical conductance. In this way, the researchers could monitor changes in ethylene gas levels over time.

To demonstrate the sensor, the team placed carnations or lisianthus flowers in a chamber with the device and observed fluctuations in ethylene production as the flowers bloomed and faded. The device can detect parts-per-billion concentrations of the gas within the chamber, and with this sensitivity it could potentially be used to monitor plants in the field, the researchers say.

Current Issue

Coronavirus (COVID-19)

- B. Princess Evangelin (II M.Sc.,)



Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness.

The best way to prevent and slow down transmission is be well informed about the COVID-19 virus, the disease it causes and how it spreads. Protect yourself and others from infection by washing your hands or using an alcohol based rub frequently and not touching your face. The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes, so it's important that you also practice respiratory etiquette (for example, by coughing into a flexed elbow).

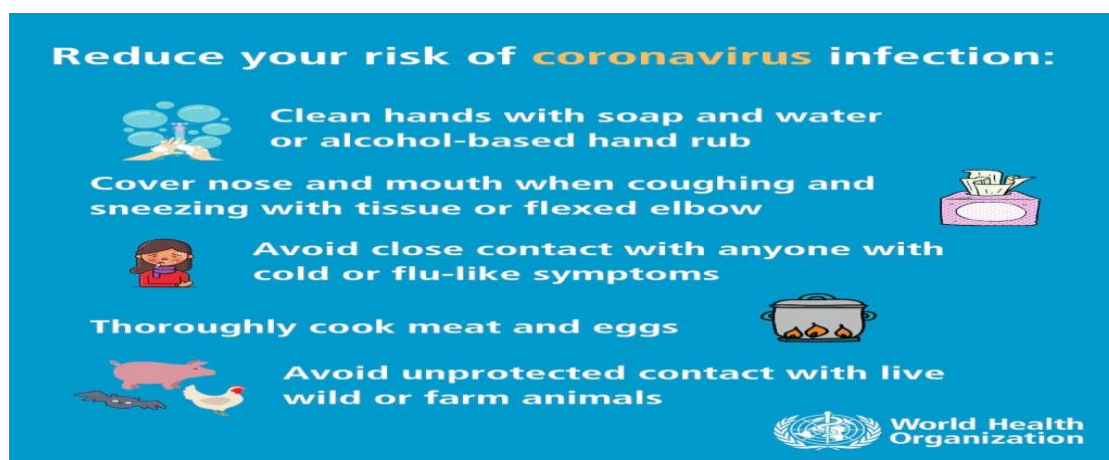
Chloroquine has been used in treating SARS-Cov-2 infection. It is a widely used anti-malarial with immunomodulatory effects (It was found to inhibit the growth of SARS-CoV-2 in vitro and in clinical studies). Hydroxychloroquine is an analog of chloroquine that is widely used in treatment

of common medical conditions particularly in rheumatological diseases. It has previously been shown to have anti-SARS-CoV activity in vitro (4). With accumulating clinical evidence, hydroxychloroquine appears to be a promising agent for the treatment of SARS-CoV-2 infection in combination with various drugs.

At EC50 values of 6.25 and 5.85 micromolar at 24 and 48 hours, hydroxychloroquine may be a promising drug for prevention of SARS-CoV-19 if it is ingested days before the virus is introduced to the body. The drug can accumulate at high concentrations in lung tissue. Physiologically-based pharmacokinetic models (PBPK) implemented by integrating in vitro data and simulating the concentration of hydroxychloroquine in lung fluid suggests that a single dose of hydroxychloroquine at 800 mg may provide a lung tissue concentration that is more than twenty times higher than EC50 values necessary to inhibit SARS-CoV-2 in the lung on day 1. It is plausible that a single dose of 400 mg or even 200 mg can provide adequate lung tissue concentration to inhibit SARS-CoV-2. Since the half life after a single dose of 200 mg is 22 days (FDA data), a single dose every three weeks should be sufficient for prevention of SARS-CoV-2 induced lung damage. The blood or sinus concentrations may not be sufficient to eradicate the virus, however prevention of lung damage may convert this deadly infection into an upper respiratory infection.

In an era where it may take 12-18 months for the wide application of an effective vaccine, hydroxychloroquine may be a practical, cheap, safe and effective agent for prevention of potentially lethal SARS-CoV-2 infection.

Precaution measures:

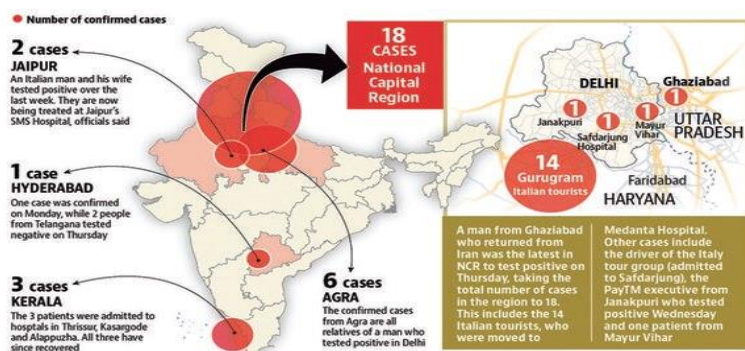


Eagle's View

COVID-19 statistics at all over world

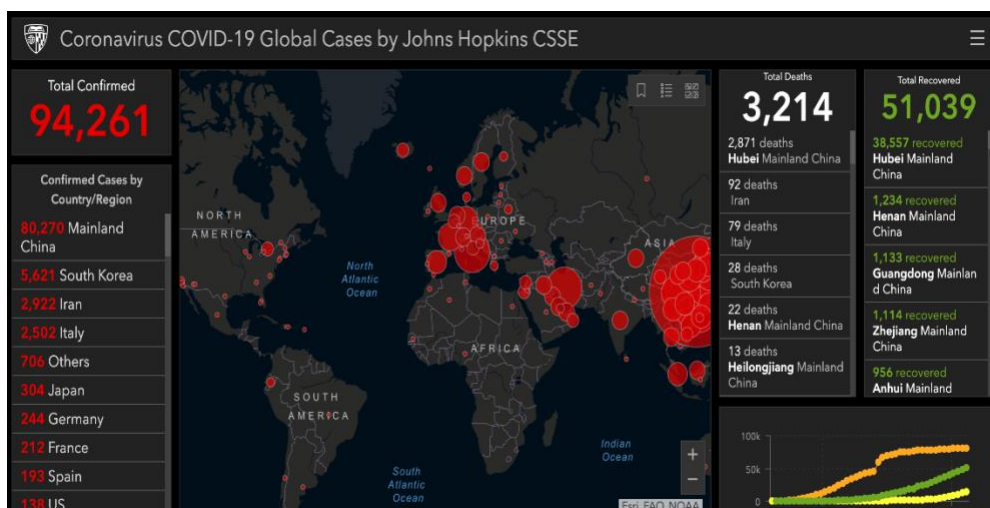
- V.RanjithaSelvamari(I B.Sc.,)

The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes, so it's important that you also practice respiratory etiquette (for example, by coughing into a flexed elbow).



After a spike in covid cases, India has put in place strict restrictions on inbound travel. The WHO has also declared it a pandemic after more than 200,000 confirmed cases and over 8,900 deaths in 114 countries.

India has confirmed three coronavirus deaths so far.



More than 18,000 people globally have died from COVID-19, as the illness is officially known, while more than 420,000 infections have been confirmed in at least 170 countries and territories. Nearly 109,000 people have recovered from the coronavirus.

CHEMYSTERY

- V.RanjithaSelvamari(I B.Sc.)

3.		10.		2.				
							1.	
				6.			5.	9.
	4.							
								7.

From Left to Right

2. Which element can take many forms
4. Which is the most abundant element in the universe

From Right to Left

7. Which element was discovered by Andreas Sigismund Marggraf
1. What is the colour of liquid oxygen

From the Bottom

9. When was Berkelium discovered
8. One of the non silvery metals

From the Top

6. What is the solid form of Carbon dioxide
10. Which element tarnishes in the air
3. Which is the most abundant element in the Earth
5. Which element can be frozen only through pressure

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 B. Princess Evangelin(IIM.Sc.).The correct answers are 1.Diamond, 2.Astatine, 3.Unbinilium, 4.Phosphourus. 5.Hassium, 6.Curium,7.Ricin, 8.Zirconium,9.Plutonium,10.Carbon,11.Uranium,12.Hassium