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N.E.S RATNAM COLLEGE OF
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THE B&I BUZZ...
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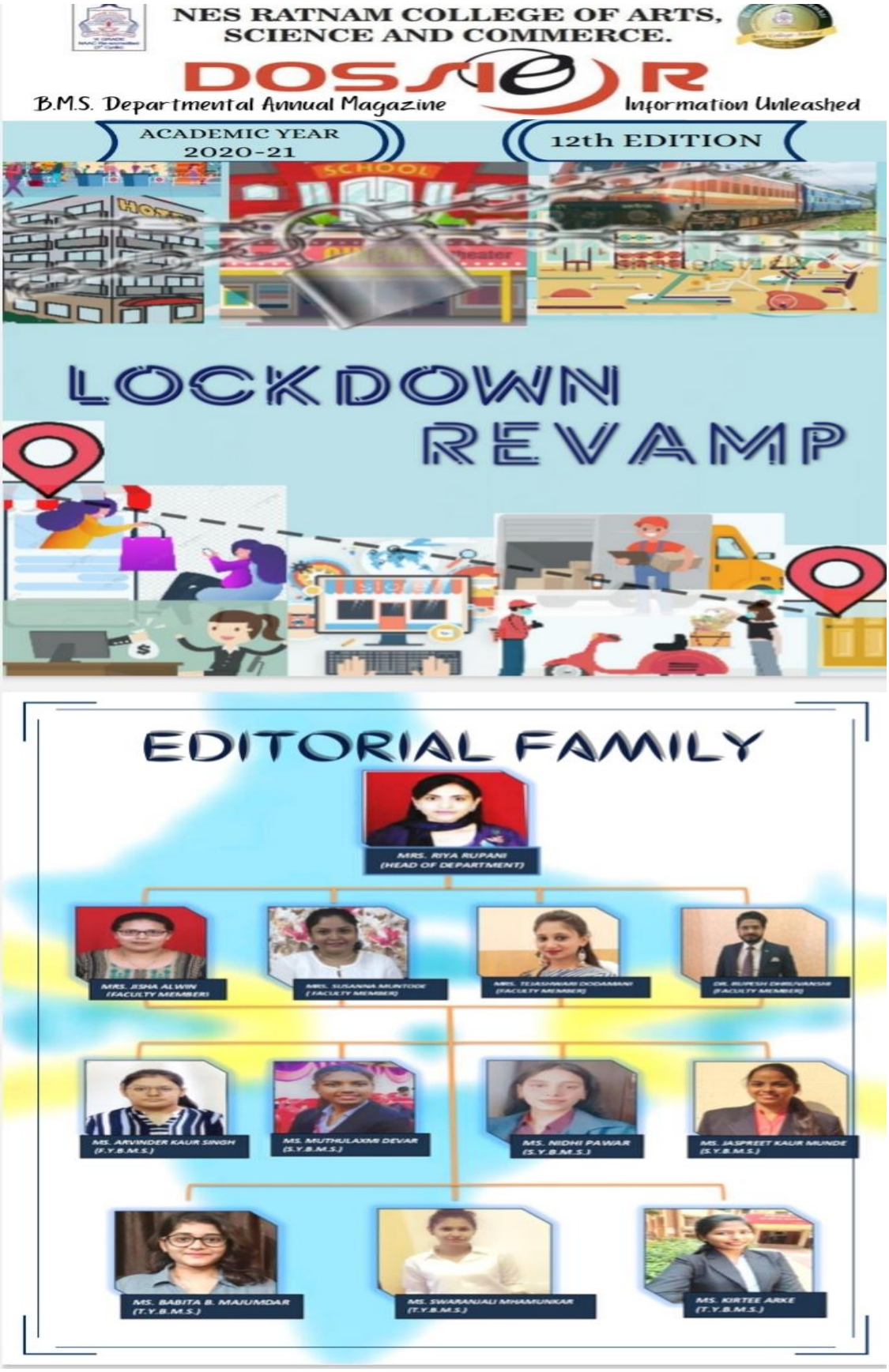
NES RATNAM COLLEGE OF ARTS, SCIENCE AND COMMERCE.
DOSSIER
B.M.S. Departmental Annual Magazine
Information Unleashed
ACADEMIC YEAR 2020-21
12th EDITION
LOCKDOWN REVAMP
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DEPARTMENT OF CHEMISTRY

IGNITE 20-21

COMBATING COVID-19 WITH CHEMISTRY

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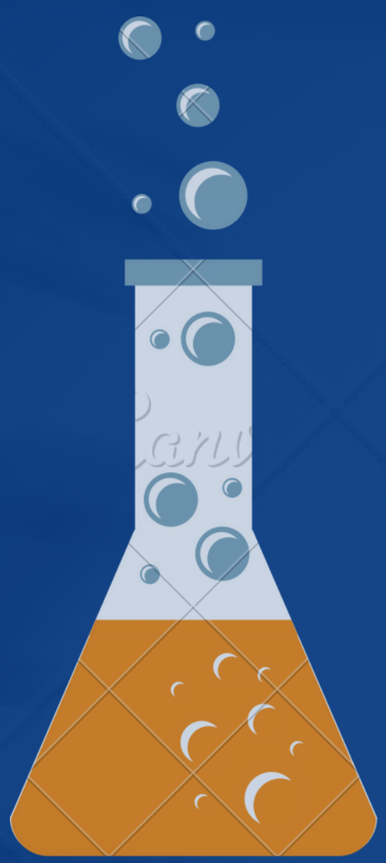
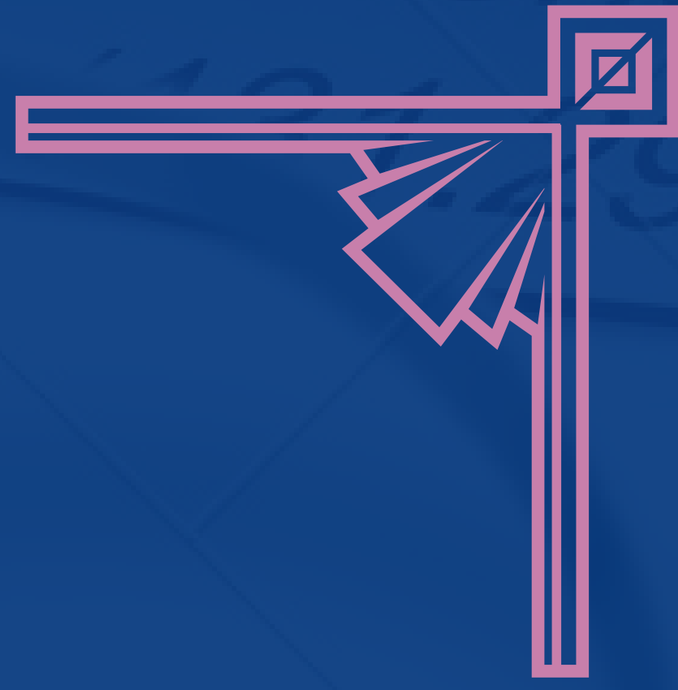
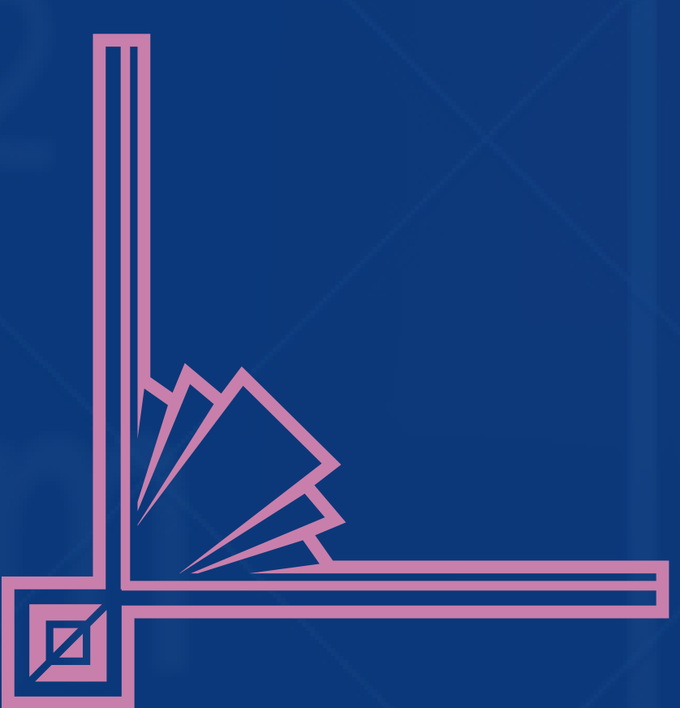




ANNUAL MAGAZINE OF THE YEAR

Life is chemistry
Dilute your sorrow
Evaporate your worries
Filter your mistake
Boil your Ego
You will get the "Crystal of Happiness"



WHAT'S INSIDE????

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"IGNITE TO INSPIRE"

Ignite is the annual magazine published by the chemistry department of NES Ratnam College.

This year as we all know that the whole world is combating with COVID-19 Virus. Therefore, we tried to draw a relationship between corona and chemistry i.e 'CORONAMISTRY'

We had included a small FUN section to lit up your mind and some fantastic research projects by our Young Researchers of NES Ratnam College.

As our theme suggests Coronamistry, our editorial team had tried to put their views on the given theme through different Articles.

On behalf of the chemistry department, we had taken an initiative to boost up your mind in this pandemic situation through different interesting contents.

PRINCIPAL DESK

Ignite magazine a brain child of Department of Chemistry.
We give special attention to students to develop their inter and intra-personal skills through various programs,which kindles their imagination.As long as ideas are expressed and thoughts kindled we can be sure of learning. Our management is always vigilant in constantly equipping the Institution to attain its vision and mission. The variety and creativity of the articles in the magazine pages represent the talents of students. I congratulate the entire team for their hard work and dedication for making this magazine.

Dr. Mary Vimochana
Principal

ACKNOWLEDGEMENT

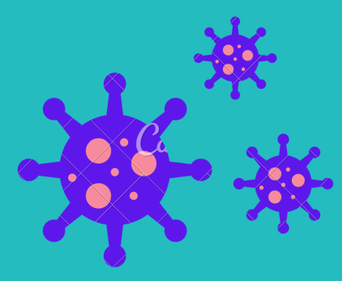
We would like to thank our
Honourable President Dr. R. Varadarajan,
our Principal Mrs. Mary Vimochana and
Vice Principal Dr. Vinita Dhulia for giving us this
golden opportunity, to frame our
Chemistry Annual Magazine
"IGNITE".

I would like to extend my gratitude towards
the Chemistry Head of the Department
Dr. Phebe Kingsley and other chemistry teaching staff
Dr. Medha Sundarajan, Dr. Jayasree G. ,
Dr. Kiran Upar, Mr. Ramraj Sutar
and Ms. Ankita Lokhande for their kind cooperation
and encouragement which helped us to
complete the Magazine work on time.

I would also like to thank our chemistry
non-teaching staffs ,who had encouraged
us throughout the process.

Thank You!

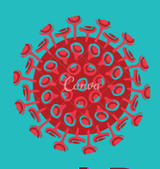
CORONAMISTRY

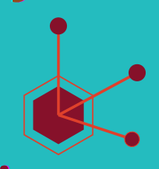


In 2020, the human civilization was attacked by a peculiar disease called COVID19. There was an alarming rise in death tolls every single day and people were forced to undergo lockdown for months. During the month of May, she was admitted in the hospital with severe labor pain and there was only a doctor and a nurse to support in that critical time of lockdown.
The doctor informed that the baby had the cord wrapped around his neck.

After several hours, the baby took its first breath without any further complications as there was ample amount of amniotic fluid. So the cord could be slipped off the baby's neck easily. Everybody was excited to see the new born child. The nurse cleaned him up and brought the baby back to the lady.
She was admiring her child and trying to hold his tiny little fingers. Suddenly, he held her hand tightly and started to speak. She had goose bumps out of shock as she was listening to what the little one had to say so early in his life.
He said ,"mummy, I might forget things soon. Just listen to what I have to say. There is very less time."

Being in an astonishing state, she was ready to listen to anything that he had to say. He said, 'mummy, ask them to give forty five tablets from the tablet named as HCT20 that is available in the market to the COVID patients and you will see them recover within fifteen days. I have been trying to convey this to you from the time I first heard you and daddy discuss about this disease a month back. But, you being part of this human world didn't have the ability to listen to me, you clearly didn't listen to me mummy!!!'



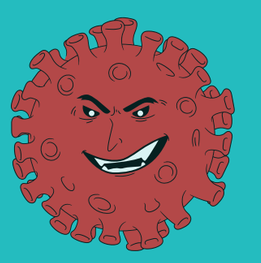


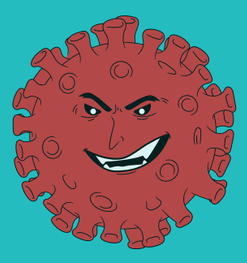
I Dr. Viaan Vishnu Kumar, though being just born now, think that we, babies have a divine connection to the nature!
By 2050,I think I will be discovering a single immunity pill for Covid-19, patent by my name VN-50. How great that would be! But Mummy, I am afraid to grow up on this planet as seeing the increase in number of diseases, natural calamities and much more! You all humans have exploited the natural resources. Even if I come up with the immunity pill in 2050, this planet will be ready to experience another pandemic. I am scared mummy! I am really grateful to be your son, as during corona you and the hospital staff have gone through so much! Thank you Mummy! But will we humans learn a lesson or no???

As he was hastily saying this to her, even before she could contemplate of him speaking all this to her, the lady woke up from a deep sleep as a result of several hours of labor pain. She found him lying next to her, smiling and staring at her!!t

COVID-19!!
WHAT IT IS????

A coronavirus is a kind of common virus that causes an infection in your nose, sinuses, or upper throat.
Most coronaviruses aren't dangerous.
In early 2020, after a December 2019 outbreak in China, the World Health Organization identified SARS-CoV-2 as a new type of coronavirus.
The outbreak quickly spread around the world.
COVID-19 is a disease caused by SARS-CoV-2 that can trigger what doctors call a respiratory tract infection.





HOW TO GET RID OF THIS????

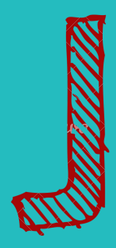
Soap is a salt of fatty acid which provides an alkaline medium to eradicate viruses and bacteria.
Therefore,it is used as a cleansing product.

Masks are made up of polystyrene, polycarbonate, polyethylene, or polyester which prevents us from surrounding infectious organisms.

Basic component of Hand Sanitizer is 60% to 95% of alcohol which helps to kill the micro organism by denaturing the proteins they contain.

CHEMISTRY = CHEM + MYSTERY

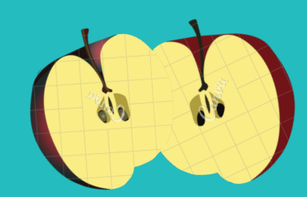
1.Out of 26 alphabets of English the only alphabet that doesn’t appear on the periodic table of element is "J".



2.Why do the cut apple brown?

- The brown color is because your apple is roasted!

that’s because apples are rich in iron which is present in all their cell. When you cut an apple, the knife damages the cells, oxygen from air react with iron in apple cells, forming iron oxides. This is just like rust that form on surface of iron objects. An enzyme called polyphenol oxidase (that’s present in the cells) helps make this reaction go faster.



3.There is about 13 billionth of a gram of gold in each liter of seawater.

4.If you took out all the empty space in atoms, the complete human race could fit in the volume of a sugar cube.

5.Osmium is the densest known stable element on Earth.

6.Mosquitoes like the scent of estrogen hence, women get bitten by mosquitoes.

SCIENTIFIC REASONS BEHIND SUPERSTITIONS

1. Eat curd and sugar before heading out :-

The tropical climate of India highly recommends consumption of curd which has a cooling effect on the stomach. The sugar which is added in generous quantities provides instant glucose. So to ensure its consumption story of good luck was woven around it.

2. Don’t go near Peepal tree in the night :-

Due to process of respiration, plants release carbon dioxide during night. Our ancestors knew ill-effects of inhaling carbon dioxide hence to discourage people from venturing near a peepal tree at night, stories of ghost were woven around these trees.

3. Never chew but swallow Tulsi Leaves :-

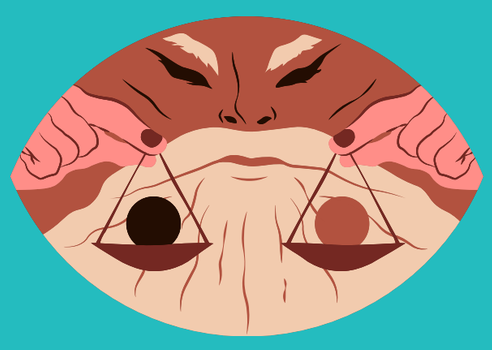
It is widely believed in India that Tulsi is Goddess Lakshmi’s avatar and hence one should not chew but directly swallow Tulsi leaves. Though Tulsi is healthy,it contains a little amount of arsenic. Thus, chewing it directly will result in enamel degradation.

4. Don’t step out during an eclipse :-

Observing the sun during solar eclipse can cause retinal burns or "eclipse blindness”. Superstition about Rahu’s head blocking the sun is a story woven around this practice.

5. Plastering floor with cow dung is auspicious :-

Cow dung plaster is considered auspicious just like any other product of a cow. Our ancestors probably started this practice to guard their house against insects and reptiles which get repelled by the pungent smell of cow dung.



SUPERSTITIONS!!!!!!!

USING LEMON AND CHILIES TO DIVERT BURI NAZAR. IS SUPERSTITION. LEMON AND CHILLI ARE VERY RICH IN VITAMIN C. SO, WHEN THE LEMON AND CHILLI WERE PIERCED BY A COTTON THREAD, THE FLUID STICK ALL OVER THE THREAD AND THE SMELL OF IT GET SPREAD INTO THE SURROUNDING ENVIRONMENT ALSO REPELLING FLIES AND INSECTS.

SNAKES ARE WORSHIPPED AS PEOPLE ACROSS INDIA FIND A CONNECT OF SNAKES WITH LORD SHIVA AND HENCE PRAY THE LORD TO PROTECT THEM FROM SERPENTS.
THIS IS A MYTH.

BLACK CAT CROSSING YOUR PATH IS CONSIDERED AS A BAD LUCK. THE ORIGIN OF THIS SUPERSTITION HAS COME FROM THE EGYPTIANS WHO WERE OF THE BELIEF THAT BLACK CATS WERE EVIL CREATURES AND THAT THEY BRING BAD LUCK. BUT IT IS A TOTAL MYTH.

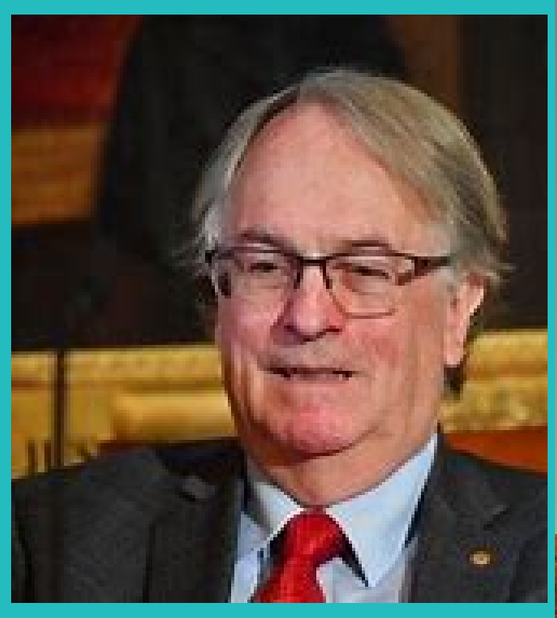
CROSSING TWO FINGERS IS PROBABLY THE SUPERSTITION THAT IS MOST WIDELY USED TODAY. BY MAKING THE SIGN OF THE CHRISTIAN FAITH WITH OUR FINGERS, EVIL SPRITS WOULD BE PREVENTED FROM DESTROYING OUR CHANCES OF GOOD FORTUNE. WHEN LYING, THIS SOMEHOW ABSOLVES THEM FROM THE CONSEQUENCES OR MAKES THE LIE NOT COUNT.

NOBLE PRIZE WINNERS

John Bannister Goodenough

An American materials scientist, a solid-state physicist,and a Nobel laureate in chemistry.
He is a professor of mechanical engineering and materials science at the University of Texas at Austin.

Michael Stanley Whittingham



British-American chemist. He is currently a professor of chemistry and director of both The Institute for Material Research and The Material Science & Engineering program at Binghamton University, State University of New York

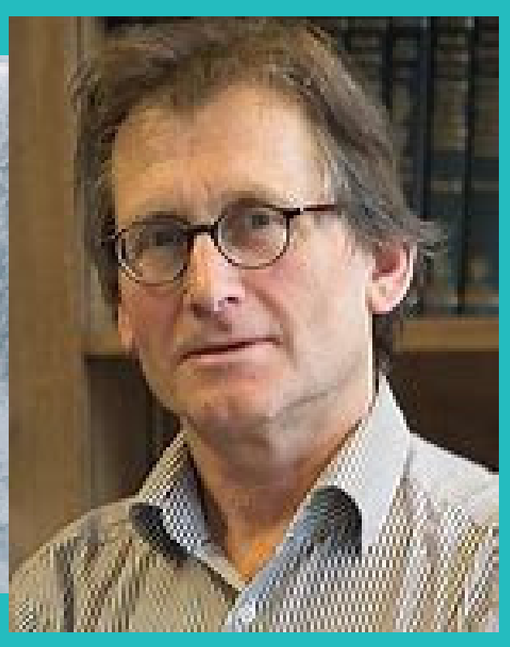
Frances Hamilton Arnold

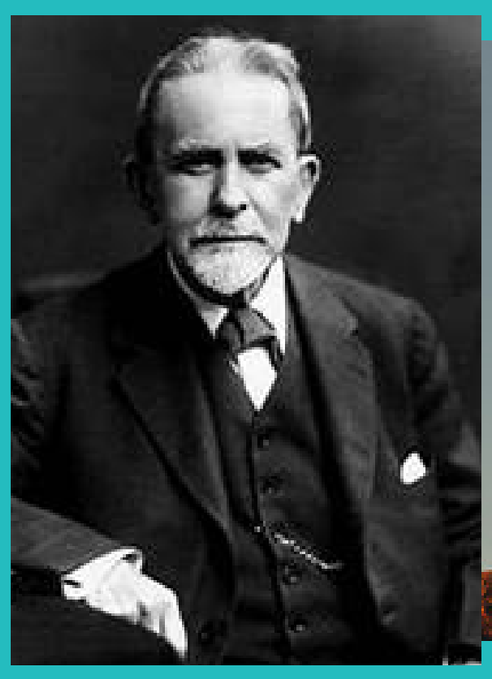
An American chemical engineer and Nobel Laureate.
She is the Linus Pauling Professor of Chemical Engineering, Bio-engineering and Biochemistry at the California Institute of Technology. She has Nobel Prize in Chemistry and Millennium Technology Prize.

NOBLE PRIZE WINNERS

Bernard Lucas Feringa

Dutch chemist who was awarded the 2016 Nobel Prize in Chemistry for his work with molecular machines. He shared the prize with French chemist Jean-Pierre Sauvage and Scottish American chemist Sir J. Freser Stoddart.





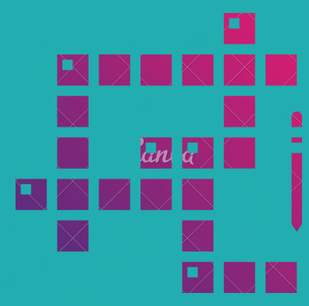
James George Frazer

Scottish social anthropologist & folklorist influential in early stages of modern studies of mythology & comparative religion. His most famous work, The Golden bough,documents & details the similarities among magical and religious beliefs around the world.

Stefan Walter Hell

A Romania-German physicist and one of the directors of the Max Plank institutes of Biophysical chemistry in Germany. He received the Nobel Prize in Chemistry in 2014 "for the development of super- resolved fluorescence microscopy", together with Eric Betzig and William Moerner.

WELCOME TO THE FUN SECTION



ACROSS:-

3) Reaction that takes in energy in the form of heat
6) Factor affecting the rate of reactions
9) Reaction that gives out energy in the form of heat
10) Gain of oxygen by a substance during a chemical reaction
11) Substance which slows down or stops a chemical reaction
13) Substance that participates in a chemical reaction

DOWN:-

1) Reaction between an acid and base forming water and salts
2) Solid that forms from a solution during a chemical reaction
4) Reaction in which one element replaces another within a compound
5) Substance formed as a result of a chemical reaction
7) ___energy is the energy needed to start a reaction
8) Substance that speeds up a reaction without being consumed
12) Chemical link that hols molecules together

FUN SECTION

COVID-19 AND FLU WORD PUZZLE

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

Can you solve this 'VIRAL RIDDLE' ?

I am the Son of a Chemist and Mathematician.
People call me Iron 59.
What is my name???

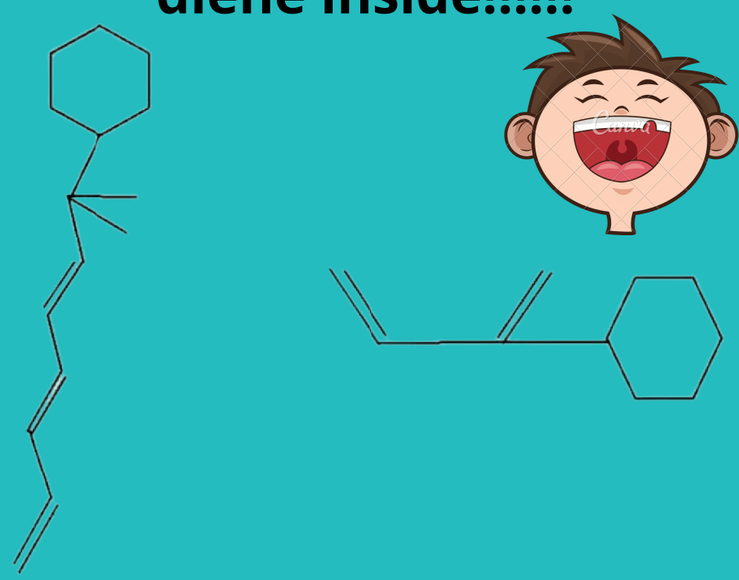
A very famous chemist was found murdered in his kitchen today.
The police have narrowed it down to six suspects.
They know it was a two man job.
Their names, Felice,Maxwell,Archibald, Nicolas,Jordan and Xavier.
A notes was also found with the body, "26-3-58/28-27-57-16".
Who are the killers? Can you identify?

I wanted to make a clever chemistry joke, but the best ones

Argon

39.948

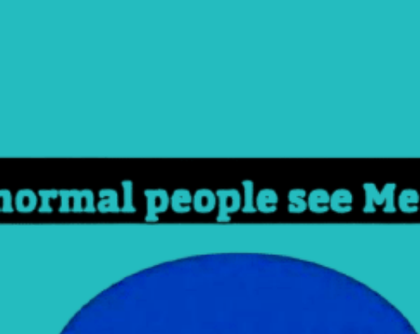
When you are triene your best but still diene inside!!!!!!



LAUGH HARDER

How normal people see Messenger

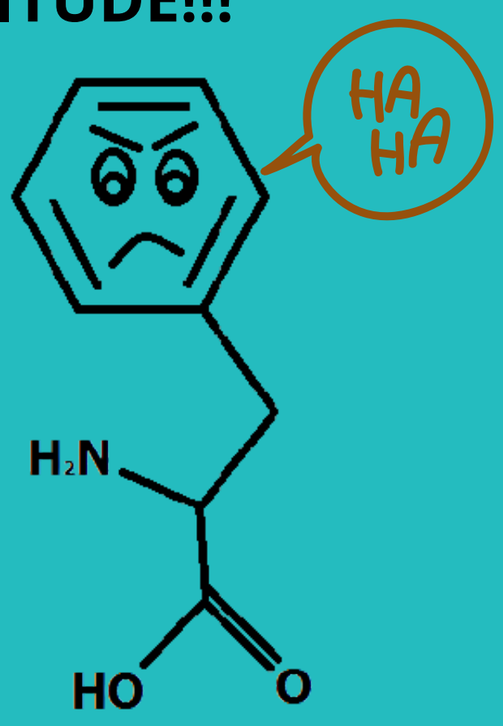
HOW CHEMIST SEE IT



HE...HE...

HE...HE...

What do you call an acid with An ATTITUDE!!!



A-MEAN-OH-ACID....

OPTIMIST	PESSIMIST	CHEMIST
		
THE GLASS IS HALF FULL	THE GLASS IS HALF EMPTY	THE GLASS CONTAINS 50% H2O(L) 39% N2 (G) 10.5% O2(G) 0.44% AR(G) 0.06% CO2(G)

YOUNG RESEARCHERS

COLOURATION OF COTTON FABRIC BY DYE
- AJAY ANIL SAKPAL

COLOURATION OF COTTON FABRIC BY DYE
- TUSHAR SANDEEP MALKAR

DETERMINATION OF VITAMIN-C BY IODOMETRIC METHOD
- AMEY R. PANDIT

GREEN SYNTHESIS OF METAL OXIDES USING DIFFERENT NATURAL WAXES
-ARCHANA SHARMA

COLOURATION OF COTTON FABRIC BY DYE

BY - AJAY ANIL SAKPAL

ABSTRACT

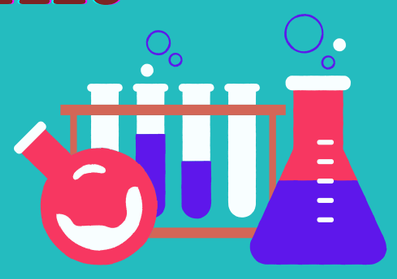
Coloration of fabric is a major process in the production of textile material. The synthetic dyes which are of wide commercial importance cause severe atmospheric and environmental pollution. The present investigation was carried out to extract natural dye from green chili (Capsicum annum) and used to dye cotton fabrics using selected synthetic and natural mordants. The main colouring component in chili is oleoresin. The dye was extracted using solvent extraction method.

The synthetic mordants considered in this work are iron sulphate, copper sulphate and alum whereas the natural mordants are aloe vera and lemon. A mordant is a substance used to set dyes on fabrics by forming a coordination complex with the dye which then attaches to the fabric. 100% scoured cotton cloth was dyed using each of the selected mordants under three different conventional mordanting techniques; pre-mordanting, simultaneous-mordanting and post-mordanting, adopting the well known vat dyeing method.

Two mordants – copper sulphate and ferrous sulphate were used in ratios 1:1, 1:3, 3:1. A wide range of soft and light colours were obtained using the various mordants considered, also the mordanting technique was found to influence the results of the dyeing process. Natural mordants gave pale green colours, while synthetic mordants such as copper sulphate and alum also gave green colours. On the other hand, iron sulphate gave darker shades of colours. Fastness is the ability of a dye to remain permanent and not run or fade. Colour fastness studies on them dyed cloth were undertaken. The dyed fabric samples were allowed to age for a week and then washed in standard industrial detergent solution.

COLOURATION OF COTTON FABRIC BY DYE

BY - TUSHAR SANDEEP MALKAR

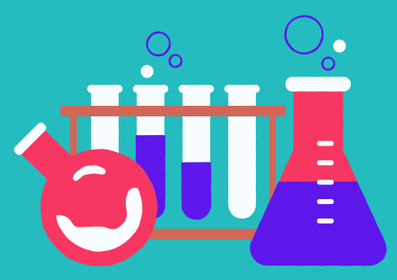


ABSTRACT

Colorations of fabric is a major process in the production of textile material. Natural dye was extracted from red chili and used to dye cotton fabrics using selected synthetic and natural mordant. Synthetic dyes which are of wide commercial importance cause severe atmospheric and environmental pollution. The major red colour in chili comes from the carotenoids capsanthin and capsorubin, while the yellow orange color is from beta-carotene and violaxanthin. A mordant is a substance used to set dyes on fabrics by forming a coordination complex with dye which is then attach to the fabrics. A scoured cotton was used for dyeing with three different techniques – pre mordanting, simultaneous mordanting and post mordanting. Two mordants - copper sulphate and ferrous sulphate were used in the ratio 1:1, 1:3, 3:1. Light fastness, rub fastness and mordant wash fastness was observed in fabrics dyed with the dye extracted from red chili.

DETERMINATION OF VITAMIN-C BY IODOMETRIC METHOD

BY - AMEY R. PANDIT

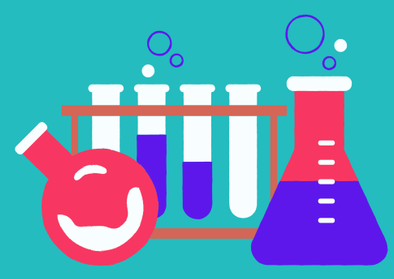


ABSTRACT

Vitamin C or known as L-ascorbate is an essential nutrient for humans and certain other animal species. In living organisms ascorbate which is an ion of ascorbic acid acts as an antioxidant by protecting the body against oxidative stress. It is also a cofactor in at least eight enzymatic reactions. Vitamin C also aids in detoxification and in improving ferum absorption. Other that,vitamin C also ensure the maintenance of cartilage, bone, denin and healthy blood vessel. Humans and rodents cannot synthesis vitamin C but most of other animals have the ability to synthesis vitamin C.

Green synthesis of metal oxides using different natural waxes

By -Archana Sharma



ABSTRACT

In this work natural waxes used which are very easily available in our surrounding like spermaceti wax, ozokerite wax and many more, these waxes even very cheap to buy. In this work I used two methods to synthesis Nano particles of metal oxide. In first method solutions used and in second method it is use direct (if it is powder form). But most effective method was a solution method because it gives very nice shape disperses of metal oxides and gives good EDAX. Second method was effective for time but it did not give nice shape disperses of metal oxide and has some issue with EDAX. There are many ways to find out characterization of Metal Oxides like U.V. and Visible, FT-IR, XRD, TEM, EDS many more.

Metal oxides have catalyst property which can be used in laboratory to produce drugs which are used in many medical fields like Benzimidazole derivatives. Metal oxides nano particles were successfully synthesized from natural waxes via green method and characterized by Scanning Electron microscope analyse, which indicate high purity of synthesized nano particles. In this as we perform two methods which gives their results. In that first method which prepared homogeneous solution of wax. This was effectively to form nano particles with their size and shape. But in second method in which we directly use wax as powder which did not work because it didn't give perfect nano sized and shaped nano particles. Even EDAX of both methods gives different graph in that percentage of particular metal and chloride was also different but percentage of oxygen equal in both methods. As a metal oxide has catalytic property so it is use in reaction.

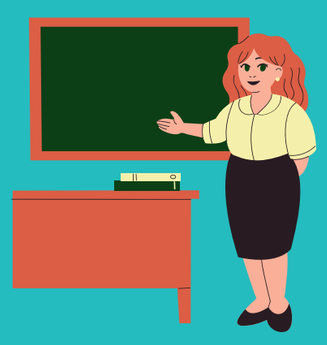
'Not all Heroes wear Capes'!
Cheers to the men of the hour!

"It's funny thing about life,once you begin to take note of the things, you are grateful for,begin to lose sight of the things that you lack!"
This quote by Germany Kent is so true!

Despite being isolated during this pandemic,
having restraints and unavailability of sources,
the Teachers,the non-teaching staffs that include the administrative stuff,librarians and other workers have gone that extra mile ensure that the transition from the traditional system to virtual system is well-ordered and a smooth process.

They have made sure that the kids do not miss out their education.
Though all of us have experienced difficulties and
certain drawbacks of this online education,
these little things can be ignored, and focus on the aspects that we have all survived this pandemic and managed to continue our routines.

This is possible only because of the efforts taken by them and when we acknowledge and show gratitude to all these unsung heroes!



As rightly said that ,
" Gratitude turns what we have,its enough ! "
So,I would like to that you all on the behalf of the whole student.

ACHIEVEMENTS

POSTER MAKING COMPETITION

1	Ritika Gupta.	TY-BSC	I Prize
2	Shalini Swami	SY-BSC	II Prize

Forest Owlet Conservation Day Celebration Essay Writing Competition

1	Srajana Satumane	SY-BSC	I Prize
2	Sonal Maharana	TY-BSC	II Prize

GOOGLE QUIZ COMPETITION

1	Aratrika Roy	SY-BSC	II Prize

BOOK REVIEW COMPETITION

1	Srajana Satumane	SY-BSC	I Prize

MARATHI WRITING COMPETITION

1	Sakshi Gosavi	SY-BSC	II Prize

ACHIEVEMENTS

Forest Owlet Conservation Day - Drawing Competition

1	Sonal Maharana	TY-BSC	I Prize
2	Anshu Kadam	TY-BSC	I Prize
3	Srajana Satumane	SY-BSC	II Prize
4	Faiza Shaikh	TY-BSC	III Prize

AMITY - CONNECTION GAME

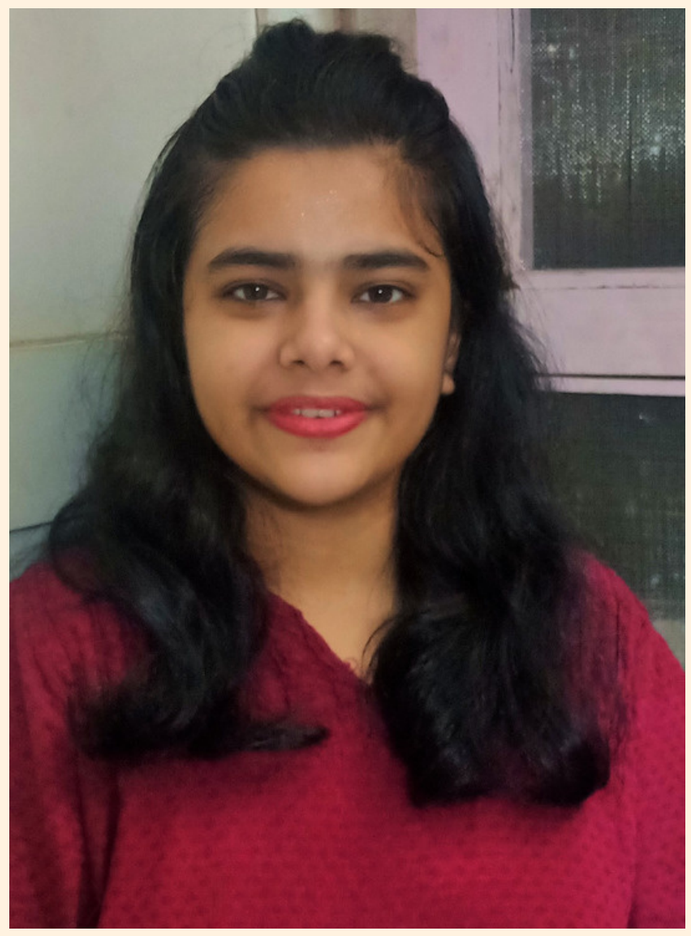
1	Aratrika Roy	SY-BSC	I Prize (Group)
2	Sanskrithi Shettigar		
3	Srajana Satumane		
4	Vrushali Thombre		
5	Shalini Swami		

FUSICS EVENT

1	Avanthika Dhanawde	FY-BSC	I Prize
2	Karishma Mulani	FY-BSC	II Prize
3	Bhumika Katare	FY-BSC	III Prize

YOUNG EDITORS

SRAJANA SATUMANE
SYBSC-CZ



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