PRAKRITI SANRAKSHAN

Newsletter

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Inside Glimpses

If you believe in our ideology and wish to step up for the environment, we welcome you to join our organisation and together we can save the environment.

Visit- https://stenvironment.org/

Follow the link, choose the kind of membership that suits you and fill-up the form.

ABOUT US

Save the Environment (STE)

SAVE THE ENVIRONMENT (STE) is the organization that aims to spread awareness to the society about environment, health and water. It was founded and registered on 19th November 1990. STE has collaborated with various organizations in the past 29 years such as All India Institute of Hygiene & Public Health (AIIHPH) and India Canada Environment Facility, DRDO Ministry of Defence, Department of Science and Technology (DST), Indian Institute of Management (IIM), Ahmedabad to mitigate the effects of arsenic and provide arsenic-free drinking water.

The vision of the society is to protect present and future generations from various Environmental Hazards. The NGO has been actively organizing various interactive sessions such as conferences (National and International), workshops, seminars and awareness programs including poster competitions, quiz competitions, science exhibitions and webinars.

HUMBLE APPEAL FOR DONATING FUNDS FOR 'THE PURULIA PROJECT FOR 3 TOILETS AND 1 DRINKING-CUM-WASH WATER UNIT'

Dear all,

Hope this message finds you in good health.

'Alone we can do so little; together we can do so much': these words of Helen Keller depict the resounding truth that we can make a big impact, by coming together for the larger good of the society. Save The Environment (STE), a registered society for research, awareness and social development headquartered in Kolkata, West Bengal abides by the said quote and we at STE are continually working towards building a better and healthier environment for all (Please visit for details: https://www.stenvironment.org/).

As part of our humble social pursuit, we plan to undertake the 'Purulia Project for 3 Toilets and 1 Drinking-cum-Wash water unit' that will benefit the needy households at Sabar Tola, Bonkanali village, Purulia, West Bengal-an economically weaker ethnic community of the state. Since long, the families residing in this area have been facing severe difficulties due to the lack of proper water supply and sanitation facilities. This is ironic and in contrast to the wake of urbanization, especially in the post-pandemic world, where green environment, clean water and proper hygiene are the absolute requirements for a healthy life. In this regard, STE requests all esteemed patrons to kindly come forward and support us in accomplishing our efforts for enabling access to basic amenities like water and sanitation for the residents of Sabar Tola. Your generous and benevolent donation will be a big help for us to accomplish our endeavour, and together we can succeed in bringing a smile to several underprivileged persons of the community.

We earnestly request your support and thank you for being with us in our efforts!

P.S.: Details of the proposed work are given in the pamphlet. All donations will be covered under 80G.

Please feel free to reach us in case of any query or concern.

With humble regards,

Team STE

Contact details:
Phone: 9871372350; 9830779260 • Email: info@stenvironment.org
Account details for donating funds:
ONLINE PAYMENT:
Name of the Account: **SAVE THE ENVIRONMENT**
Account Number: **38041963371**
Bank and Branch: **State Bank of India, Lake Town, Kolkata**
IFSC Code: SBIN0001506 OR GOOGLE PAY to: **Mrs. Chhanda Basu; Mobile 9830779260**

विनम्र अपील

पुरुलिया परियोजना के लिए राशि दान करने की विनम्र अपील

प्रिय साथियों,

आशा है कि यह संदेश आपको अच्छे स्वास्थ्य में मिलेगा।

जहाँ सोच स्वस्थ होगी,वहीं शौचालय का निर्माण होगा।

स्वास्थय संकट को रोकने व देश की गरिमा बनाए रखने के लिए शौचालय महत्वपूर्ण हैं। विशेषकर महिलाओं के लिए ये सुविधा अपरिहार्य है।एस.टी.ई. का यह प्रयत्न है कि सरकार की 'स्वच्छ भारत' की मुहिम में यथासंभव अपरोक्ष रूप से सहयोग कर सकें। किन्तु सभी के सहयोग के बिना ये कार्य संभव नहीं।

'अकेले हम इतना कम कर सकते हैं; एक साथ हम बहुत कुछ कर सकते हैं': हेलेन केलर के ये शब्द उस प्रबल सत्य को दर्शाते हैं कि हम समाज के बड़े अच्छे के लिए एक साथ आकर एक बड़ा प्रभाव डाल सकते हैं।

पर्यावरण बचाओ (एसटीई), एक पंजीकृत सोसायटी, उक्त उद्धरण का पालन करती है और हम एसटीईके सदस्य सभी के लिए एक बेहतर और स्वस्थ वातावरण बनाने की दिशा में लगातार काम कर रहे हैं (विवरण के लिए कृपया देखें: https% www%stenvironment.org)।

हम '3 शौचालयों और 1 पेयजल के पानी की इकाई' के लिए पुरुलिया परियोजना शुरू करने की योजना बना रहे हैं, जो सबर टोला, बोंकनाली गांव, पुरुलिया, पश्चिम बंगाल में जरूरतमंद परिवारों को लाभान्वित करेगी– जो आर्थिक रूप से कमजोर है। लंबे समय से, इस क्षेत्र में रहने वाले परिवारों को उचित जल आपूर्ति और स्वच्छता सुविधाओं की कमी के कारण गंभीर कठिनाइयों का सामना करना पड़ रहा है।

इस संबंध में, एसटीई सभी सम्मानित संरक्षकों से अनुरोध करता है कि कृपया आगे आएं और सबर टोला के निवासियों के लिए पानी और स्वच्छता जैसी बुनियादी सुविधाओं तक पहुंच को सक्षम करने के हमारे प्रयासों को पूरा करने में हमारा समर्थन करें। आपका उदार और परोपकारी दान हमारे प्रयास को पूरा करने के लिए एक बड़ी मदद होगी, और साथ में हम समुदाय के कई वंचित लोगों के लिए मुस्कान लाने में सफल हो सकते हैं।

हम ईमानदारी से आपके समर्थन का अनुरोध करते हैं और हमारे प्रयासों में हमारे साथ रहने के लिए धन्यवाद!

प्रस्तावित कार्य का विवरण पैम्फलेट में दिया गया है। सभी दान 80ळ के तहत कवर किए जाएंगे।

कृपया किसी भी प्रश्न के मामले में हमसे बेझिझक संपर्क करें।

विनम्र अभिवादन के साथ,

टीम एसटीई

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ऑनलाइन भुगतानः
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RECYCLING OF STYROFOAM (EPS) WITH LIMONENE

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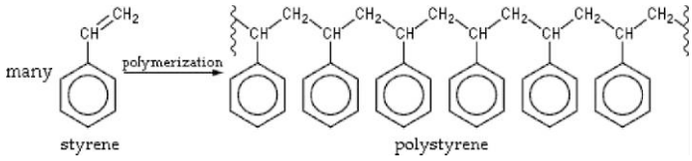
Introduction: These days, as many environmental problems are becoming an issue, people are starting to pay attention to the environment. Especially, people have started to realize that the soil pollution from indiscreet trash reclamation is a serious problem, as it causes many side effects. For example, as people bury huge amounts of trash in the ground, without giving it time to decompose, the ground starts to be polluted, so the area near the sanitary landfill cannot be used for other uses, such as farmland. Also, the specific trash that cannot be decomposed naturally becomes a huge problem, as it just stays in the ground without disappearing, and keeps polluting the ground.

As a representative example, Styrofoam does not decompose naturally, and it is known as a material that has a huge volume, so many people have problems throwing it away or recycling it. Not many companies recycle this material, Styrofoam, as it costs a large amount of money and it is not easy to decompose or recycle it.

Many new technologies are developed to recycle these kinds of materials that do not decompose in natural ways, and people need to know more about the material to recycle it in the right way, so it can be helpful for nature too.

Uses of Styrofoam: Polystyrene, a strong plastic created from styrene, can be injected, extruded, or blow molded to make a very useful manufacturing material called Styrofoam. Styrofoam is well known as it is use for beverage cups and packaging. However, Polystyrene in Styrofoam is also used in building materials, house hold items, and electrical appliances, such as light switches and plates**.**

Chemistry in Styrofoam: To understand the chemistry of Styrofoam, people need to understand Polystyrene first, as Styrofoam is made up of Polystyrene. Polystyrene is an aromatic polymer that is made from the aromatic monomerstyrene, which is a liquid hydrocarbon that is commercially manufactured from petroleum by the chemical industry. It is one of the most widely used plastics.



The property of polystyrene is based on its structure of it. It is un-reactive in a chemical way, so it is used to create products that are user containers for chemicals, solvents, and foods. This stability is from the transformation of carbon double bonds into carbon single bond which is less reactive. Polystyrene is mostly flexible and can form a moldable solid orviscous liquid. The attraction of Polystyrene is due to the short-range van der Waals attraction between chains. As the molecules and long hydrocarbon chain consist of thousands of atoms, the total attractive force between the molecules is large. But when it is heated, the chain takes on higher degrees of conformation and slides past each other. The chain can slide a long each other due to the weak inter molecular power, rendering the bulk system flexible and stretchable.

Problems with Styrofoam: Styrofoam known as Expanded polystyrene foam **(EPS)** is a lightweight cellular plastic material. Styrofoam is 98% air, which makes the item bulky and hard to dispose directly. Styrofoam is hard to be recycled directly from the recycling bin. According to the EPA each year Americans throw away 25,000,000,000 Styrofoam cups. Even 500 years from now, the foam coffee cup you used this morning will be sitting in a landfill, because of the materials and chemicals that make up Styrofoam or polystyrene foam take an incredible amount of time to break down in the environment. It may also be ingested by animals and eventually block their digestive tracts ultimately causing their deaths by starvation. The manufacturing process of Styrofoam also consumes petroleum, which is a non-renewable resource, and benzene, which is known to be carcinogenic to humans.

The recycling of polystyrene is not for cost benefits it's for the benefit of our environment. The skinny of it is we should all be avoiding products that can last forever in our landfills. Styrofoam is a great packaging material, according to its insulating and protective properties. However, once goods are delivered with Styrofoam packages and people open them, Styrofoam becomes waste material that companies must pay to dispose of. Also, there is no such good way for individuals to recycle Styrofoam easily, so using Styrofoam is becoming a problem. It is conservatively estimated that hundreds of thousands of tons of waste Styrofoam is produced and sent to landfills each year. This Styrofoam will not be decomposed for a long time and will pollute the ground. This material is very light weight compared to its volumes it is not hard to imagine how much land fill space is filled with tons and tons of Styrofoam. Also, unfortunately, there are not many recycling programs that accept Styrofoam, so it is really important to find other new ways to recycle or make the volume smaller for this Styrofoam.

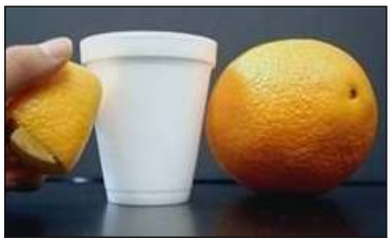
Limonene: Limonene is a hydro carbon that is classified as cyclic terpene. It has the molecular formula of C10H16. It is a colorless liquid at room temperature with a strong smell of orange. It is found in citrus fruits like lemon and orange. It is a chiralmolecule, and as it is common with such form,

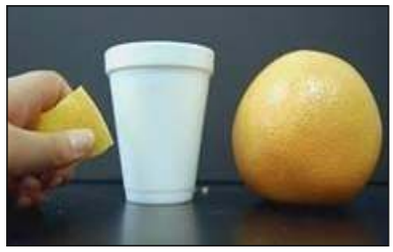
biological sources produce one enantiomer, the principal industrial source, citrus fruit, contains d-limonene. As the main odor constituent of citrus, d-limonene is used in food manufacturing as a flavoring, such as orange oil.

Limonene is increasingly being used as an environmentally friendly alternative to mineral oils as a solvent force leaning purposes, such as the removal of oil from machine parts, since it is more easily biodegradable than mineral oils, and produced from a renewable source, such as citrus oil, as a byproduct of orange juice manufacturing. As it is a strong hydrocarbon, it also can be used to dissolve Styrofoam, as Acetonedid.

EXPERIMENT:

Part1: Testing solubility of Styrofoam in each solution.

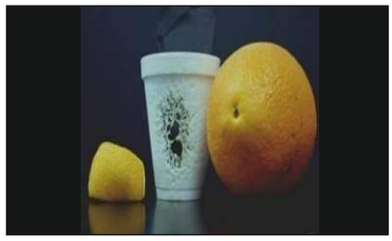
Procedure	Picture
1) The peel of the orange was squeezed on the side of a Styrofoam cup, and the observation was recorded in the next five minutes.	
2) The inside fruit part of the lemon was removed from the peel, and the peel was squeezed on the side of the Styrofoam cup, and the observation was recorded in the next five minutes.	

3) The peel of a grapefruit was squeezed on the side of a Styrofoam cup, and the observation was recorded in the next five minutes.	
4) The inside fruit part of the lime was removed from the peel, the peel was squeezed on the side of the Styrofoam cup, and the observation was recorded in the next five minutes.	
5) The orange extract was spread on the side of a Styrofoam cup with a brush, and the observation was recorded in the next five minutes.	
6) The lemon extract was spread on the side of a Styrofoam cup with a brush, and the observation was recorded in the next five minutes.	
7) The orange juice was spread on the side of a Styrofoam cup with a brush, and the observation was recorded in the next five minutes.	
8) The lemon juice was spread on the side of a Styrofoam cup with a brush, and the observation was recorded in the next five minutes.	
9) The grapefruit juice was spread on the side of a Styrofoam cup with a brush, and the observation was recorded in the next five minutes.	

10) Three same size pieces of the Styrofoam cup were cut, and placed in each two different nail polish, which are regular and acetone-free, and Acetone, and the observation was recorded in next five minutes. polish



Observations

Results	Picture
The black paper was placed to see the hole. The side Styrofoam was dissolved in **orange peel oil**, and it was possible to see through.	
The black paper was placed to see the hole. The side Styrofoam was dissolved in **orange peel oil**, and it was possible to see through.	
The black paper was placed to see the hole. The side Styrofoam was slightly dissolved in **lemon peel oil**, but it was not strong enough to make a hole.	
The black paper was placed to see the hole. The side Styrofoam was slightly dissolved by lime peel oil, but it was not strong enough to make a hole. It just made the surface area of the Styrofoam cup bumpy.	

The orange extract, lemon extract, orange juice, lemon juice and grape fruit juice did not work.

- In the regular nail polish, about five minutes later, the piece of Styrofoam cup dissolved slightly, and it shrank.
- In the acetone-free nail polish, about five minutes later, the piece of Styrofoam cup dissolved slightly, and it shrank.
- In the Acetone, about 2 minutes later, the piece of Styrofoam cup dissolved faster than other nail polishes, and the piece of Styram cup shrank but did not dissolve perfectly.

Part 2: Dissolve Styrofoam in Orange and Lemon peel extract.

Orange peel extract	Lemon peel extract
	
Styro foam box dissolved by orange peel extract for two minutes.	Styro foam box dissolved by lemon peel extract for two minutes.
After two minutes, the left length of th e Styro foam box was:	After two minutes, the left length ofthe Styro foam box was:
Trial 1: 4cm	Trial 1 : 5cm
Trial 2 : 4.5cm	Trial 2 : 5.5cm
Trial 3 : 4.5cm	Trial 3 : 6.5cm
Trial 4 : 4cm	Trial 4 : 6cm
Trial5 : 5cm	Trial 5 : 6cm

Result and Discussion

The first experiment waste sting the dissolving Styrofoam ability of limonene in orange, lemon, grape fruit, and lime peel. It was also for proving that limonene is only contained in the peel of the fruit, not inside. All fruit oil from the peel of each fruit worked well to dissolve the Styrofoam cup. Orange peel oil showed the best ability to dissolve Styrofoam, and a Grapefruit was the next. Lemon and Lime did not work strongly, so this shows that orange peel contains a large amount of limonene in it. Orange extract and lemon extract could not dissolve the Styrofoam cup was that it is made from the inside part of the fruit. Three different types of acetones were used in this experiment to compare the speed of dissolving Styrofoam to the natural fruit oil. Acetone that is used in chemical experiments shows the extremely fast speed of dissolving Styrofoam. Regular Nail Polish, which is made of acetone showed a slower speed of dissolving a piece of Styrofoam cup compared to the peel oil. This is because nail polish should be connected directly to human skin, so it contains less acetone compared to the chemical acetone. Acetone-Free Nail Polish shows the slowest speed of dissolving pieces of Styrofoam.

The orange peel extract started to dissolve the Styrofoam box quickly for the first 20 seconds and showed its yellow colour on the box. However, later on, the speed of dissolving slowed down, and it stopped dissolving the box after 2 minutes. When the orange peel extract completed its dissolving process after 2 minutes, all five trials shows a similar length of the left Styrofoam box.

In the case of the lemon peel extract, it showed almost the same process as orange peel extract, except for the length of leftover Styrofoam. It was slightly longer than orange peel extract, which means orange peel extract has a better ability to dissolve Styrofoam.

Conclusion

The purpose of this experiment was fully achieved, as it proved that limonene, in specific fruit peel, such as oranges, grapefruits, lemons, and limes. can be a good way to recycle Styrofoam, which causes serious environmental problems these days. Orange peel oil has more limonene as compared to lemon peel oil, so it has a better ability to dissolve Styrofoam.

These experiments also proved that limonene will be a good eco-friendly solution for the ground pollution by Styrofoam, which does not decompose naturally.

If the way of extracting peel oil from orange and lemon peel easily is developed, people can use limonene from the peel in their house to recycle Styrofoam easily without wasting money and space on it. This idea should be explored among all the people over the world, so they can recycle Styrofoam wisely in aneco-friendly way.

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PEEL 'O' FILTER

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AIM: To make clean water available in remote/rural areas using domestic waste.

INTRODUCTION

Peel 'o' filter is a modern technology designed to purify water in an inexpensive way using household waste, specifically kitchen waste. It is eco-friendly and has six layers of fruit and vegetable peels, arranged according to their pore sizes, which are capable of removing harmful ions from water and adding more nutrients to it. This is based on sorption and Desorption.

PRINCIPLE USED

The phenomenon of attracting and retaining the molecules of a substance on a surface of a liquid or solid leading to a higher concentration on the surface in comparison to the bulk is called **adsorption**.

The molecular species or substance, which concentrates or accumulates at the surface, is termed **adsorbate** and the material on the surface of which the adsorption takes place is called **adsorbent.**

Metal adsorption depends on the nature of the **adsorbent surface** and **species solution**. The amount of adsorption is a **minimum at pH 2** and increases as pH increases. The maximum adsorption occurs **at pH 6–8** for banana and orange peels. But adsorption decreases when pH increases further.

Why Use PEEL 'O' filter?

Clean drinking water is vital for all human beings. But unfortunately, not everybody has access to safe and uncontaminated water. **3-4 million people**, especially **children**, die annually from **water-related diseases**.

There have been numerous technologies developed to provide clean drinking water specifically to remove metal toxicants from polluted waters- silica, alumina, activated carbon, and resins have all been proven successful but most of them are expensive. **We bring to you some of the most inexpensive, accessible and simple ways to clean water**, specially designed for rural areas.

Using water from **Brazil's Parana River** and locally grown bananas, researchers at **Sao Paulo State University** have demonstrated that dried banana peels can successfully remove copper and lead from contaminated water. We made this the basis of our research and on experimentation, found the same properties exhibited by many other fruit peels.

PROCESS

LAYER 1 – CLOTH: The cloth filter is a simple and cost-effective technology for **reducing the contamination of drinking water**. Water collected in this way has a greatly reduced pathogen count - though it will not necessarily be perfectly safe, it is an improvement for poor people with limited options. The cloth filter provides less than ideal purification on its own - usually filtering is an initial step, to be followed by further disinfection.

LAYER 2 – NEEM LEAVES: Neem contains **98 % water** and more **carbohydrates**, with low quantities of other nutrients like **protein, amino acids, vitamins,** etc. When water is passed through it, all these nutrients are released into the water removing impurities and making it healthy.

LAYER 3 – BANANA PEELS: Banana peels can keep pollutants away from slipping into your water. Compounds in the peels contain **nitrogen, sulfur, and organic compounds such as carboxylic acids.** These acids contain **negatively-charged electron pairs** which can **attract metals that are commonly found in water**, such as **lead or copper** because they typically have a **positive charge** and **coagulation** takes place.

The peels could be a cheap new way to more easily detect heavy metal contamination in drinking water. During our experiments, we observed that the **smaller the size of banana pieces more was the adsorption rate.** (This is due to adsorption being a **surface phenomenon** and by making smaller pieces, we increase the surface area.) Using dry banana peels is more beneficial as rotting is not a problem anymore. We can use the same banana peels up **to 11 times** without replacement. We get Cu and Pb contaminated water from leaving lukewarm water inside a pipe for at least 24 hours.

LAYER 4 – APPLE PEELS: The presence of **highly toxic anions such as Chromate (CrO_4^{2-}), Arsenate (AsO_4^{2-}),** and Arsenate in drinking water is a major health concern in many parts of the world. **Zirconium cations (Zr^{2+})** are immobilized onto the apple peel surface and used for the extraction of these anions. The **adsorption** and **desorption** studies revealed that **the adsorption mechanism involves electrostatic interactions.** Overall, Zr^{2+} is an effective adsorbent to adsorb adsorbate CrO_4^{2-} and AsO_4^{2-}

LAYER 5 – ORANGE PEELS: **Activated carbon** which is a very good adsorbent, obtained from orange peel is used for the **removal of heavy metal ions like Cr^{3+}, Cd^{2+}, Co^{2+}** and **Ni^{2+} (adsorbate)** from water by adsorption. Copper ions (Cu^{2+}) exhibit the **greatest adsorption on activated carbon orange peel because of its size and pH conditions.** Adsorption capacity varies as a function of pH**.**

Equilibrium, thermodynamic and kinetic studies were carried out for the biosorption of **Cd^{2+} and Ni^{2+} ions** from aqueous solution using the grafted **copolymerization modified orange peel.**

The residues of banana and orange peels can be processed and converted to be adsorbents because they have **large surface areas, high swelling capacities, excellent mechanical strengths**, are convenient to use, and have great potential to adsorb harmful contaminants such as heavy metals.

LAYER 6 – CUCUMBER PEELS: Cucumber peelremoves **Pb (II)** from water under several varying conditions such as **pH, adsorbent dosage, and contact time. Maximum metal sorption** was found to occur at

the initial **pH of 5.0.** The adsorption capacity was found to be **28.25 mg/g** for an initial Pb (II) concentration of **25 mg/l at 25° C.** With the loss in Pb (II) ion removal efficiency it could be **regenerated using 1M HNO_3 during repeated sorption-desorption cycles** and showing recovery of **93.5%.**

TESTING AND ANALYSIS

CHEMICAL TEST AND REACTION OF HARMFUL IONS:

Confirmation of Cu^{2+}-Add an excess of NH_4OH solution to the original solution,and a deep blue solution is obtained.

$Cu^{2+} + 4NH_3(aq) \rightarrow [Cu(NH_3)_4]^{2+}$ (Tetra ammine Copper(II) ion)

(Blue) (Deep blue)

Confirmation of Pb^{2+}-To the solution add K_2CrO_4. Yellow ppt. is obtained.

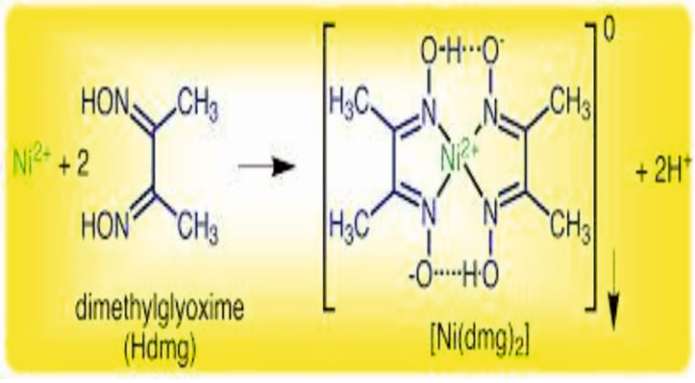
$Pb^{2+} + K_2CrO_4 \rightarrow PbCrO_4 + 2K^+$ (Yellow ppt.)

Confirmation of arsenate-To the solution add magnesia mixture and white ppt is obtained.

Confirmation of Cobalt ion -Take water extract, add NH_4OH, and a Blue solution is obtained.

$Co^{2+} + NH_3(aq) \rightarrow [Co(NH_3)_6]^{3+}$ Blue

Confirmation of Ni $^{2+}$-Take water extract and make it alkaline by adding NH_4OH and then add a few drops of dimethyl glyoxime- bright red ppt. is obtained.



TESTING OF TDS:

Water Sample	TDS (ppm)
Tap Water	2620
Peel O Filter Water	200
RO Water	145

The permissible range of TDS in drinking water: Different government has different regulations for the TDS level. The U.S. EPA sets the maximum contaminant level for TDS at 500 ppm.

Level of TDS (milligrams per liter)	Rating
Less than 300	Excellent
300 - 600	Good
600 - 900	Fair
900 - 1,200	Poor Above
1,200	Unacceptable

TESTING OF pH:

Water Sample	pH
Tap Water	5.6
RO Water	6.8
Peel O Filter water	6.9

The permissible range of pH in drinking water: pH indicates the intensity of acidic and basic character at a given temperature.

Indian standard specifications for drinking water: **pH 6.5 to pH 8.5**

WHO standard specifications for drinking water: **pH 7.0 to pH 8.5**

CONCLUSION

- Since the TDS value is within the prescribed limit as set by The U.S. EPA, the water purified by peels is suitable for drinking.
- Since the pH value is within the prescribed limit as set by India Jal Board and WHO, the purified water is suitable for drinking.

Harmful ions removed	Layer 1	Layer 2	Layer 3	Layer 4	Layer 5	Layer 6
	Cloth	**Neem**	**Banana**	**Apple**	**Orange**	**Cucumber**
	Reduce Pathogen counts	Act as Disinfectant	Remove Lead and Copper	Remove Chromate, Arsenate & Arsenite	Removes Cr^{3+}, Cd^{2+}, $Co^{2+,}$ and Ni^{2+}	Removes lead and color dyes

ADVANTAGES

- ✓ Eco friendly
- ✓ Cost-effective
- ✓ Reuses waste material
- ✓ Everything can be done at home itself.

DISADVANTAGES

- ➢ The material gets decayed quickly, so has to be changed frequently.
- ➢ It is time-consuming.
- ➢ Pesticides cannot be removed by this.

FUTURE SCOPE

Its main purpose is to help people in remote areas to get clean, drinkable water using domestic waste like peels. It also adsorbs useful ions from peels.

This technology is already being used by some families in Chandini Chowk, Delhi. The pipework there is very old. So when the water passes through them, Cu ions from these pipes get dissolved in water, making it harmful to drink. If this technique is being used currently by some families of Delhi, the capital of India, then why can't this be used with some improvements in other parts of the country, especially rural areas?

In this age of pollution, this is an easy and effective way to purify water using biodegradable waste with no

pollution. With further experiments and innovations, there may come a time when we all will be using these instead of RO filters which release harmful gases and are non-biodegradable.

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ENVIRONMENTAL EDUCATION AND AWARENESS REGARDING BEE CONSERVATION IN KOLKATA

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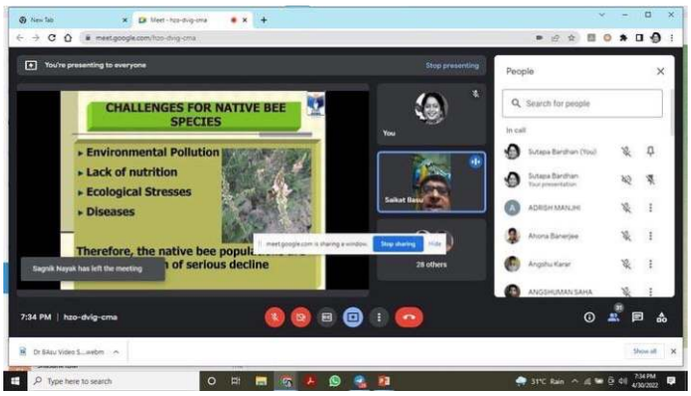
Today is World Bee Day (May 20). Bees worldwide are showing a significant decline due to a number of anthropogenic factors. Bees are important natural pollinators and essential for the survival of global agriculture, forestry and apiculture industries. My humble request to you is to kindly join us for global bee conservation. The rapid decline of bees due to indiscriminate use if pesticides in agriculture, pollution, change in land usage, lack of melliferous vegetation, Climate Change, Colony Collapse Disorder (CCD), parasitic disease infestation like the infinite Varoa mite are all cumulatively causing global decline of bees.



We organized both online and offline seminars, symposium, colloquiums and workshops at schools and colleges to capture participants at primary, secondary and tertiary levels of education. It was a great joy to meet students both online and at their school and college campuses. The level of interest and enthusiasm regarding bee conservation and protection was phenomenal among students. Even the little ones we found were extremely interested and passionate regarding this sensitive environmental issues. Several forms of participation platforms like discussion, extempore speech, debates, quizzes, student-teacher as well as student-parent interactions, essay writing, drawing and painting competitions, short dramas, singing and dancing were all included as various innovative tools of student engagement. The participation levels were extremely high across schools and colleges wherever we went on behalf of ECHO (Education Counselling and Helping Organizations), a Kolkata based NGO dedicated towards counselling and training of students as well adults and senior citizens. By educating our younger generation we help building a more sensitive and responsible society.

Please open the link below and sign the petition electronically with few simple clicks. If you click the clink it will take you to the website and u just follow the steps, very easy. If you scroll down the page it will show a box saying sign the petition and this will record your vote. Please help us in collecting 10K + signatures to take it to the parliament.

Photo credit: ***Saikat Kumar Basu***

ACTIVITIES AT A GLANCE IN THE MONTH OF APRIL, MAY & JUNE 2022

V. Sunitha
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Yogi Vemana University, Kadapa, A.P. 516005

1st April – 'Aprils Fools' Day April Fools' Day, also known as All Fools' Day, has been observed for centuries, however the origins of the holiday are unknown. Some historians believe it was first seen in 1852, when France moved from the Julian to the Gregorian calendar, and others believe it is linked to the change of seasons.

1st April - Prevention of Blindness week

It is marked from April 1st to 7th to raise awareness about the causes of blindness and how to avoid them.

2nd April - World Autism Awareness Day

On April 2nd, World Autism Awareness Day is commemorated to promote awareness and educate people about autism.

4 April- International Day of Mine awareness

Every year on April 4th, the International Day for Mine Awareness and Assistance in Mine Action is commemorated to raise awareness of the dangers that landmines pose to civilian populations' safety, health, and lives, and to encourage state governments to implement mine-clearing programmes.

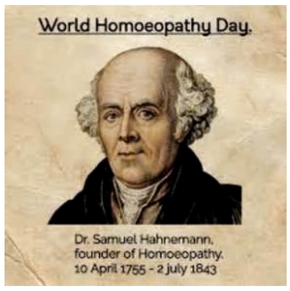
5th April- National Maritime Day

Every year on the 5th of April, India commemorates National Maritime Day because it was on this date in 1919 when the SS Loyalty, The Scindia Steam Navigation Company Ltd's first ship, set sail for the United Kingdom. In terms of Indian navigation, it was a watershed moment.

7 April- World Health Day

As we know that "Health is wealth".Therefore, World Health Day is celebrated worldwide every year on the 7th of April. Various programs and arrangements are managed by the World Health Organization. It was the first time celebrated in 1950.

10 April - World Homoeopathy Day (WHD)



WHD is observed every year on 10 April to pay tribute to the founder and father of the Homeopathy system of medicine Dr. Christian Friedrich Samuel Hahnemann. The main aim of this day is to spread knowledge about Homeopathic medicine in public health. In fact from 10 April to 16 April World Homeopathy Week is celebrated annually and is organised by the World Homeopathy Awareness Organisation. Basically, this day is celebrated both for homeopaths and also for those who have been healed with homeopathy.

10 April - Siblings Day

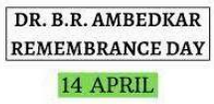
Siblings are an important part of our lives. One cannot imagine his or her life without siblings. To honour our siblings, to show affection, to appreciate one another -- National Siblings Day is celebrated every year on April 10. In India, the occasion of Raksha Bandhan celebrates the special bond between the siblings. Siblings Day is celebrated in

many parts of the world like the United Kingdom, Australia, India, etc. but is not federally recognized.

11 April - National Safe Motherhood Day (NSMD)
NSMD is observed on 11 April every year to create awareness about maternity facilities, lactating women, and also for proper health care given to women.

13 April - Jallianwala Bagh Massacre
It took place on 13 April 1919 at Amritsar and is also known as the Amritsar massacre. On this day, British troops under the Command of Gen Dyer fired on a large crowd of unarmed Indians in Amritsar in Punjab of India. Several hundred people were killed and many hundreds were wounded.

14 April- B.R. Ambedkar Remembrance Day



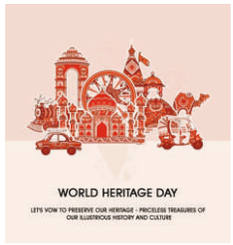
B.R. Ambedkar Remembrance Day is also known as Ambedkar Jayanti or Bhim Jayanti which is observed on 14 April to commemorate the memory of B.R Ambedkar. This day celebrates the birthday of Baba Saheb Bhimrao Ambedkar, an Indian politician, and social rights activist.

15 April - Good Friday
This year Good Friday is celebrated on 15 April, This day is considered an auspicious day in Christianity. Good Friday is observed by Christians to commemorate the crucifixion of Jesus Christ and is observed on the Friday before Easter Sunday. On this occasion, people observe a fast visit the church and remember the sacrifice of Jesus Christ. It is also known as Black Friday, Holy Friday, Great Friday, or Easter Friday.

17 April - World Haemophilia Day
World Haemophilia Day is observed on 17 April every year to increase awareness about haemophilia disease and other inherited bleeding disorders. In 1989, World Haemophilia Day was started by the World Federation of Haemophilia (WFH) in honour of WFH founder Frank Schnavel's birthday.

17 April - Easter Festival
Easter festival commemorates the resurrection of Jesus from the dead and is celebrated across the world. It begins from Lent and ends with Holy Week, which includes Maundy Thursday, Good Friday, and finally Easter Sunday. In Latin Easter is known as Pascha. It is celebrated annually but the date of the festival is not fixed, it varies every year.

18 April- World Heritage Day
This day is observed every year on 18 April to preserve the human heritage and recognize the efforts of all the relevant organizations in the field. This day was announced by the International Council on Monuments and Sites (ICOMOS) in 1982 and was approved by the General Assembly of UNESCO in 1983.



21 April - National Civil Service Day

Every year on 21 April Civil Service Day is celebrated to rededicate and to recommit themselves to the cause of the people. On this day Civil servants from various parts of the country come together, share their experiences and also learn other's experiences of working in the public sector.

22 April- World Earth Day
This day is observed every year on 22 April to mark the anniversary of the birth of the modern environmental movement in 1970. In the Universe Earth is the only planet where life is possible and so it is necessary to maintain this natural asset. World Earth Day is celebrated to increase awareness about the importance of the planet.

23 April - English Language Day

English Language Day is celebrated on 23 April annually and is a United Nations (UN) observance day. The day coincides with both the birthday and death day of William Shakespeare and World Book Day.

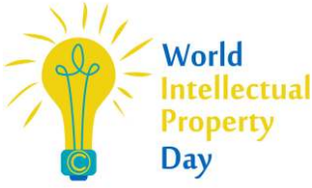
24 April - National Panchayati Raj Day

National Panchayati Raj Day is celebrated every year on 24 April in India. On this day Constitution came into force with effect on 24 April 1993. In 2010 the first National Panchayati Raj Day was celebrated. A new part in the Constitution Part IX was added bypassing 73rd Amendment Act from Article 243 to 243 (O) titled "The Panchayats" and a new Eleventh Schedule consisting of 29 subjects within the functions of Panchayats were also added.

25 April - World Malaria Day

World Malaria Day is celebrated every year on 25 April to raise awareness about the disease malaria, how to control it and how to eradicate it completely. In 2008, the first Malaria Day was celebrated, which was developed from Africa Malaria Day, which was an event observed since 2001 by the African governments. At the 60th session of the World Health Assembly in 2007, it was proposed that Africa Malaria Day be changed to World Malaria Day.

26 April - World Intellectual Property Day



This day is celebrated every year on 26 April and was established by the World Intellectual Property Organization (WIPO) in 2000 to raise awareness of how patents, copyright, trademarks, and designs impact daily life. And also it plays an important role that intellectual property rights play in encouraging innovation and creativity.

28 April - World Day for Safety and Health at Work

This day is observed on 28 April every year by the International Labour Organization (ILO) since 2003. This day marks how to improve occupational safety, health and looks for continuing these efforts through several changes like technology, demographics, climate change, etc.

30 April - World Veterinary Day

Every year on the last Saturday of April, people around the world come together to raise awareness about the vital roles that veterinarians play. The World Organization creates this day for animal health and the World Veterinary Association.

1 May: International Labour Day or May Day

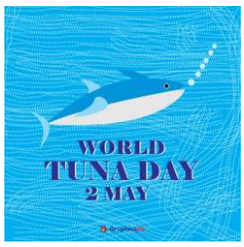
Labour Day or May Day are other names for International Labour Day. Every year on May 1st, it is commemorated around the world. Antarrashtriya Shramik Diwas or Kamgar Din is the name given to Labour Day in India.

1 May - World Laughter Day (first Sunday of May)

Every year on the first Sunday in May, World Laughter Day is observed. The inaugural celebration took place in Mumbai, India, in 1998. Dr. Madan Kataria, the originator of the worldwide Laughter Yoga movement, organised the event.

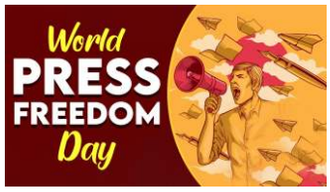
2 May- World Tuna Day

The United Nations (UN) established the day on May 2 to promote awareness about the importance of tuna



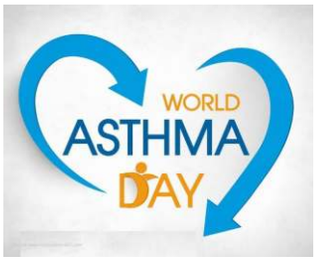
fish. It is observed on 2 May and is established by the United Nations (UN) to raise awareness about the importance of tuna fish.

3 May -Press Freedom Day



Every year on May 3rd, Press Freedom Day or World Press Freedom Day is held to assess press freedom around the world and to pay tribute to journalists who have died while doing their profession.

3 May - World Asthma Day



Every year on the first Tuesday in May, World Asthma Day is marked to raise awareness and care for asthma around the world. The Global Initiative for Asthma hosts an annual conference. Asthma is a chronic bronchial inflammation that causes cough, dyspnea, chest tightness, and other symptoms.

4 May – Coal Miners Day

Coal Miners Day is celebrated every year on May 4th to honour coal miners. Let us explain: coal mining is the process of extracting coal from the ground. Coal Mining is one of India's most dangerous professions.

4 May - International Firefighters Day

Every year on May 4, International Firefighter's Day is observed. It was established on January 4, 1999, following an email proposal sent around the world in response to the loss of five fireman in an Australian bushfire. As a result, this day is marked to honour and recognise the sacrifices that firefighters make to keep their communities and environment safe.

6 May - International No Diet Day

Every year on May 6, it is commemorated. It's a celebration of body acceptance, which includes fat acceptance and variety in body type.

7 May - World Athletics Day

On May 7, World Athletics Day is commemorated to develop sports awareness among youth, in schools and institutions, and to promote athletics as a fundamental sport. In addition, new talent and young athletes will be introduced to the sphere of athletics.

8 May - World Red Cross Day

Every year on May 8, World Red Cross Day commemorates the birth anniversary of the Red Cross's founder. Henry Dunant was the founder of both the Red Cross and the International Committee of the Red Cross (ICRC).

8 May-World Thalassaemia Day

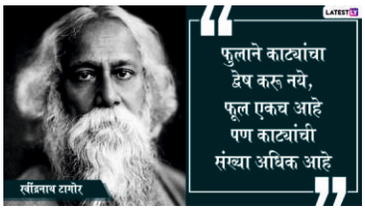
World Thalassaemia Day or International Thalassaemia Day is observed every year on 8 May in honour of all patients suffering from Thalassaemia and for their parents who have never lost hope for life, despite the burden of their disease. This day also encourages those who struggle to live with the disease.

8 May-Mother's Day (Second Sunday of May)

Mother's Day is celebrated every year on the second Sunday of May to honour motherhood and is observed

in different forms throughout the world. Mother's Day was founded by Anna Jarvis who had given the idea of celebrating Mother's Day in honour of mothers and motherhood in 1907. Nationally this day was recognised in 1914.

9 May – Rabindranath Tagore Jayanti



As per drikpanchang, the day of Boishakh 25th currently overlaps with either 8th May or 9th May on the Gregorian calendar. As per the Gregorian calendar, it is observed on May 7 May in other states. He was born on 7 May, 1861 in Kolkata. He was one of India's top artists, novelists, authors, Bengali poets, humanists, philosophers etc. In 1913, he was honoured with Nobel Prize in Literature.

11 May - National Technology Day

Every year National Technology Day is observed on 11 May to highlight the important role of Science in our daily lives and encourage students to opt for science as an option for a career. On this day Shakti, the Pokhran nuclear test was held on 11 May, 1998.

12 May - International Nurses Day

Every year International Nurses Day is celebrated on 12 May to commemorate the anniversary of Florence Nightingale's birthday. This day also celebrates the contribution done by nurses to society around the world. On this day the International Council of Nurses organisation produces an International Nurses kit to educate and assist health workers globally with a different theme every year.

15 May – International Day of Families

International Day of Families is observed every year on 15 May. Family is the basic unit of society. This day provides an opportunity to raise awareness about the issues related to the families and to increase knowledge about the social, economic and demographic processes that affect them.

16 May - Buddha Jayanti or Buddha Purnima

It is believed that on the full moon of the month of Vaishakh, Gautama Buddha was born in Lumbini near Kapilavastu. He is also known as 'Jyoti Punj of Asia' or 'Light of Asia'. This year, Buddha Jayanti or Buddha Purnima is celebrated on 16 May.

17 May – World Telecommunication Day

World Telecommunication Day is observed every year on 17 May. It marks the founding of ITU when the first International Telegraph Convention was signed in Paris on 17 May, 1865. It is also known as World Telecommunication and International Society Day. Since 1969, it has been celebrated annually.

17 May - World Hypertension Day

This day is celebrated by World Hypertension League (WHL) on 17 May annually. The day promotes awareness about hypertension and encourages people to prevent and control this silent killer epidemic.

18 May – World AIDS Vaccine Day

Worlds AIDS Vaccine Day or HIV Vaccine Awareness Day is observed every year on 18 May. This day marks the efforts of

thousands of researchers, scientists, and health professionals who have contributed to the process of finding safe and effective AIDS medicine. It is also an opportunity to educate communities about the importance of preventive HIV vaccine research.

18 May-International Museum Day

International Museum Day is observed on 18 May every year to raise awareness about the museum and its role in society. The International Council of Museums (ICOM) created International Museum Day in 1977. The organisation suggested a proper theme every year which may include globalisation, bridging cultural gaps and care for the environment.

20 May-National Endangered Species Day (Third Friday in May) Every year on the third Friday in May National Endangered Species Day is celebrated annually to raise awareness about the importance of wildlife conservation and restoration efforts for all imperilled species. Endangered Species Act 1973, focuses on the protection of wildlife and threatened species.

22 May - International Day for Biological Diversity

International Day for Biological Diversity is observed on 22 May every year to increase awareness and understanding of the issues of biodiversity.

May 23 - World Turtle Day

It is observed annually on May 23 to spread awareness regarding protecting turtles and tortoises and also their disappearing habitats across the world. The World Turtle Day 2022 theme is 'Shellebrate!' The theme asks 'Everyone to Love and Save Turtles'.

31 May – Anti-Tobacco Day

Anti-Tobacco Day or World No Tobacco Day is observed on 31 May every year across the globe to make people aware and educate them about the harmful effects of tobacco on health which causes cardiovascular diseases, cancer, tooth decay, staining of teeth etc.

1 June – World Milk Day

Every year on June 1st, the world commemorates World Milk Day to honour the dairy industry's significant contributions to sustainability, economic development, livelihoods, and nutrition.

1 June- Global Day of Parents

Every year on June 1st, the World Day of Parents is commemorated. The United Nations General Assembly declared this day in 2012, honouring parents for their unwavering support, sacrifice, and commitment to their children.

3 June - World Bicycle Day

The United Nations General Assembly established June 3rd as International World Bicycle Day to honour the bicycle's distinctiveness, longevity, and versatility as a low-cost, ecologically benign, and long-lasting mode of transportation.

4 June – International Day of Innocent Children Victims of Aggression

Every year on June 4th, the United Nations (UN) observes the International Day of

Innocent Children Victims of Aggression to raise awareness of the children who have been victims of physical, mental, and emotional abuse around the world. On this day, the United Nations reaffirms its commitment to preserve children's rights.

5 June- World Environment Day

Every year on June 5th, more than a hundred countries commemorate World Environment Day. The environment is a serious issue that not only impacts people's well-being but also impedes economic development around the world. "Ecosystem Restoration" is the subject of World Environment Day 2021.

7 June – World Food Safety Day

On June 7, World Food Safety Day is commemorated to raise awareness about the dangers of polluted food and water to human health. This day also focuses on how to lower the danger of food poisoning. Food safety is essential for reaching the Sustainable Development Goals.

8 June- World Brain Tumour Day

Every year on June 8th, it is commemorated to draw international attention to the plight of people suffering from terrible diseases and the urgent need for greater research. Several activities are being held all around the world to raise awareness about brain tumours.

8 June – World Oceans Day

Every year on June 8, World Oceans Day is commemorated to encourage people of all ages to take charge of their own destiny and stop damaging the oceans and other bodies of water. This day was dedicated to raising awareness about the importance of eliminating single-use plastics and taking the steps necessary to effect genuine change.

12 June - World Day Against Child Labour

The International Labour Organization (ILO) has declared this day to draw attention to the worldwide abolition of child labour, as well as the efforts and actions required to do so. The Sustainable Development Goals (SDGs), which contain a commitment to stop child labour, were endorsed by world leaders in 2015.

14 June - World Blood Donor Day

Every year on June 14th, World Blood Donor Day is commemorated to promote awareness about the importance of blood donations around the world and to thank blood donors for their contributions. "Donating blood is an act of solidarity," says this year's slogan. "Join the fight to save lives."

15 June - World Wind Day

Every year on June 15th, the world celebrates World Wind Day to promote clean energy. It's a day to learn about wind energy, its power, and the potential it offers to alter our energy systems, reduce carbon emissions, and boost job creation and growth.

15 June -World Elder Abuse Awareness Day

Every year on June 15th, this day is commemorated to raise awareness about the importance of caring for the elderly. Elder abuse is a worldwide social problem that impacts the

health and human rights of millions of senior citizens. The United Nations General Assembly declared the day a global holiday.

17 June - World Day to Combat Desertification and Drought

Since 1995, this day is ob about international desertification and the eff Nations General Assembly the "World Day to Co Drought".

18 June -Autistic Pride Day

Every year on June 18th, it is commemorated to honour variety and limitless possibilities. This is a day for patients with autism and their family or carers to get together. A day dedicated to promoting awareness, acceptance, and self-determination.

19 June - World Sickle Cell Awareness Day

Since 2008, World Sickle Cell Awareness Day has been observed every year to raise awareness about Sickle Cell Disease (SCD) and the challenges that sufferers and their families face. The United Nations General Assembly declared this day to be World SCD Day, recognising SCD as a public health concern.

3rd Sunday of June - World Fathers Day

Every year on June 20th, this day is commemorated to raise awareness about the hardships that refugees endure around the world. World Refugee Day is also an important opportunity for the public to demonstrate their support for families who have been forced to escape their homes..

21 June – International Yoga Day

International Yoga Day is observed on June 21st all over the world to create awareness about the importance of yoga in daily life and to inform people about its advantages. The Ministry of AYUSH in India commemorates International Yoga Day.

23 June - United Nations Public Service Day

The United Nations General Assembly has declared June 23rd as Public Service Day. It emphasises the role of public service in development, honours public employees' efforts, and encourages young people to pursue employment in the public sector.

23 June -International Widow's Day

Every year on June 23rd, International Widows Day (international) is commemorated to raise global awareness about the human rights violations that widows face in numerous nations after the loss of their spouses.

29 June: International Day of the Tropics

Every year on June 29th, it is commemorated to raise awareness about conservation measures and to promote the world's tropical regions.

30 June - World Asteroid Day

On June 30th, Asteroid Day is observed to promote online education on asteroids. A resolution was voted by the United Nations declaring June 30th as Asteroid Day.

From the Editor's Desk

Dear Readers

I would like to welcome you to **Volume 5, Issue 2**,of the **PRAKRITI SANRAKSHAN** quarterly newsletter of STE.

April - June 2022 issue highlights the various activities conducted in the workshop organised for students at the school and college level on the topic - **ENVIRONMENTAL EDUCATION AND AWARENESS REGARDING BEE CONSERVATION**, in **Kolkata** on **20th May 2022**, to celebrate World Bee Day. This issue also contains articles based on environmental issues. The important days observed from April to June 2022 have been also included in this issue.

I express my sincere thanks to all the people who have contributed informative and inspirational articles to make this newsletter successful. I would like to express my profound gratitude to the President of STE Dr. Kshipra Misra, the editorial team and Mr. Gian Kashyap for designing this issue of **PRAKRITI SANRAKSHAN** and giving it the desired shape.

Dr. Vaishali Mishra
Editor STE

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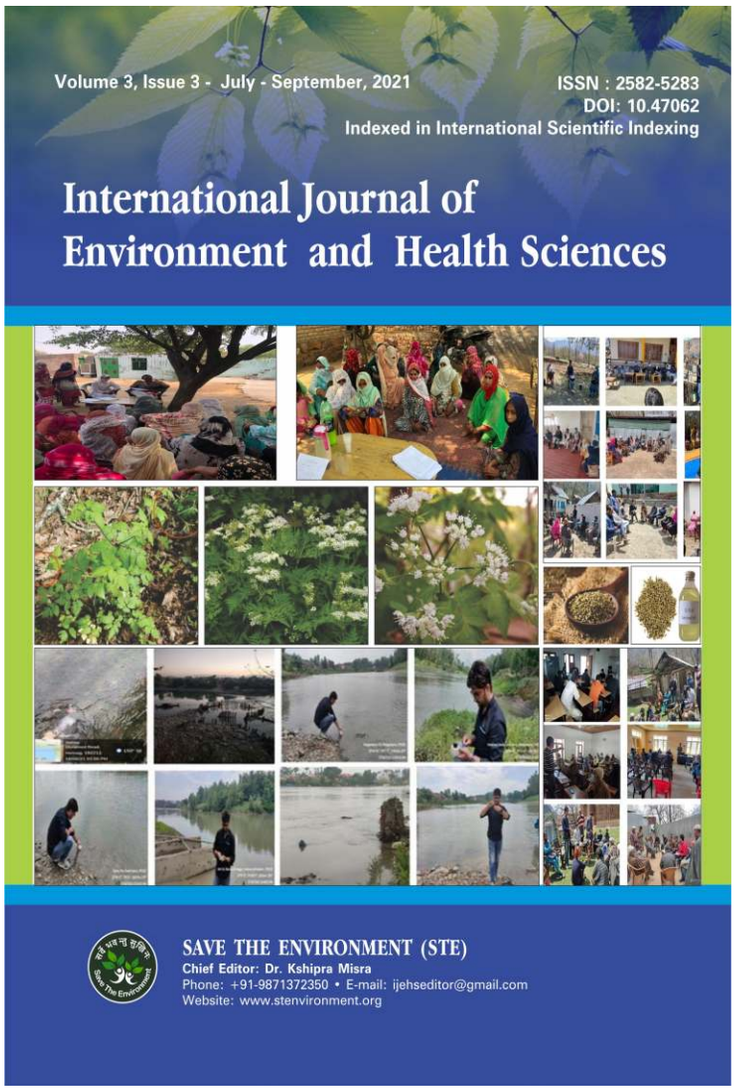

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