

ONLY NEWS PAPER PUBLISHED IN INDIA FOR SCIENTIFIC COMMUNITIES

# NESA NEWSLETTER

NATIONAL ENVIRONMENTAL SCIENCE ACADEMY

Vol. 26 Issue-12 (MONTHLY)

December 2023

From the Editor's

Dear Readers,

In the December issue of our Newsletter, we received several popular articles from diverse fields. All the authors deserve great appreciation for sharing articles in huge numbers. Please continue sending articles to our Publication team and share published newsletter with your friends also.

I would like to thank the Editorial team including Print, Designer and Publication committee for their efforts throughout the edition.

Your suggestions are always welcome for improvement.

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Editor-in-Chief

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## INNOVATION BY SCHOOL CHILDREN

**S. K. Basu**

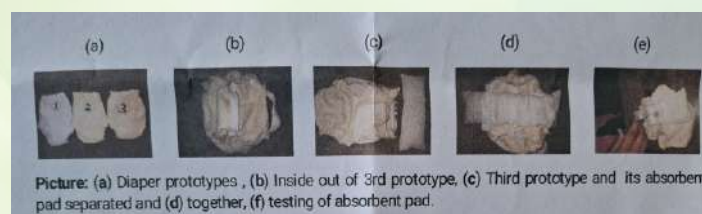
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Use of silica gel as a moisture absorbent is well fashioned. It has been in use for so long because it does not have any cheaper alternative. Although it is well established that it doesn't have any significant pollution impact. However, it has a potential threat to humans as well as other organisms. In many of the cases old or ruptured packets of silica gel are thrown out in the environment. If any organism consumed them it could cause nausea, vomiting, abdominal pain, loss of appetite, and dehydration as in the case of ours. Sometimes a few chemical indicators may be mixed with silica gel, which are highly carcinogenic. These carcinogenic chemicals can find their way to human body or other organisms by water or food.

To overcome the problem in future, two young innovative students; Aziza Khatun and Afsana Khatun of the Margram High School (H.S), Rampurhat II, Birbhum, West Bengal, have come up with a natural, cheaper biodegradable alternative made from puffed rice. We can make and use puffed rice powder in our home for anytime use by following some general norms. We can use it every where to absorb moisture, from food to medicine except inside electronic gazettes. To protect it from insect attack we mix a few leaf powders which also give it a good smell. Our basic experiment suggests that, puffed rice powder absorbs moisture comparatively quicker than silica gel. We do not need to add any indicator because after absorbing a significant amount of water change in texture can be detected with bare hands even within our own made absorbent packets with cotton cloth.

The students have successfully established the fact that puffed rice powder has the ability to partially replace the use of silica gel as absorbent under specific circumstances. The



Picture: (a) Diaper prototypes, (b) Inside out of 3rd prototype, (c) Third prototype and its absorbent pad separated and (d) together, (e) testing of absorbent pad.

have successfully designed recyclable diapers pants with the help of this material which are working good. They have found that normal diaper pant material gets raised after shaking water; but, in contrast puffed rice powder gets reduced in volume after shaken with water it will reduce the discomfort of babies. The diaper pants designed by them are totally organic and biodegradable as it is made from cotton clothes and puffed rice powder. Its large scale production and

daily use in replacement of the traditional synthetic diaper pants could potentially solve a long lasting environmental pollution issue. Their home made diaper pants could be used multiple times by simply washing and replacing the absorbent pad if necessary. Thereby it is cost efficient too. They have been working tirelessly for improving their prototypes day by day.

## HEMP: IMPORTANT SOURCE OF FOOD, FIBRE AND FUEL

**Saikat Kumar Basu**

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### Introduction

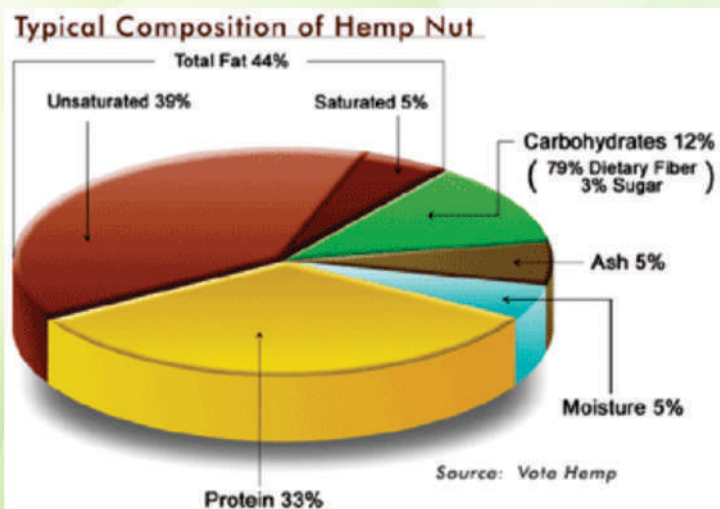
Hemp is not a very well-known product or crop to most people. When people think of hemp it is safe to say people relate it to marijuana. The two are closely related, but very different. Hemp is a variety of cannabis grown for its fiber and seeds. The levels of THC in hemp are too low for it to cause diverse effects to humans so it remains legal to be grown in most countries excluding the United States. It is referred to as Psychoactive meaning that you cannot get high from it. There are many uses for hemp including rope, canvas, paper, clothing and it is now becoming big in the organic and vegan food chain because of its health benefits. It is not very well known that hemp seed has the highest

essential fatty acid levels of any plant. Hemp seed contains all the essential amino acids and essential fatty acids needed to maintain healthy human life.

It falls under the category of “cash crop” because the fiber and seeds are very valuable. Hemp is a very diverse crop; it can grow in almost any soil condition and doesn't need very much special attention. It is a very strong plant and doesn't need to use of pesticides or other chemicals. Hemp foods, hemp oil, hemp plastics, hemp insulation, hemp concrete, and hemp composites are among a few of the products that are available today from the hemp crop. Another advantage to hemp is that it is Eco-Friendly and completely renewable. With the world in the state it is in today anything that is environmentally friendly will catch attention of most people. My main focus in regards to value-added production is going to be on hemp food products. There are many other value-added products that can be created from hemp but I will focus on just one.

Nutrition		Size	Facts
Serving			<b>56g</b>
Calories <b>284 (1190 kJ)</b>			
<b>Amount Per Serving</b>			
			<b>%DV *</b>
Total	Fat	17.4g	27 %
Saturated	Fat	1.6g	8 %
Trans	Fat	0g	
Polyunsaturated	Fat	13.9g	
Omega-6		10.3g	
Omega-3		3.6g	
Monounsaturated	Fat	1.9g	
Cholesterol		0mg	
Sodium		168mg	7 %
Potassium		504mg	14 %
Total	Carbohydrate	19g	6 %
Fiber		16.8g	3 %
Sugars		1.1g	
Protein		12.5g	
Vitamin		E 72	%
Calcium		6	%
Phosphorus		56	%
Magnesium		107%	
Iron		50	%
Zinc		41	%
Copper		47	%
Manganese		355 %	

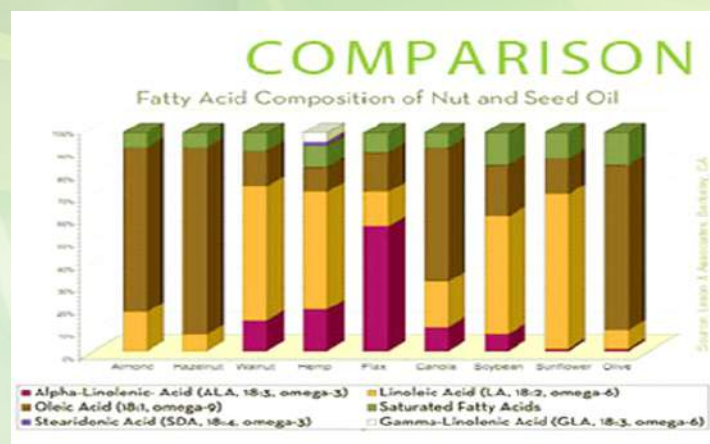
\*Percent Daily Values are based on a 2,000 calorie diet



As you can see from the chart hemp seeds are mainly essential fatty acids and protein making it a very healthy alternative to many other snacks. Hemp seed is the perfect snack. It is high in protein, fairly low calories, essential fatty acids, minerals and vitamins. Hemp is often compared against soy and flax because they all are closely related health wise but soy and flax are more widely known about and are often consumer's first choice. There is one major difference between soy and hemp, soy contains oligosaccharides. They are short chain sugar molecule found in soy and mixed with the proteins found in soy it gives most people gas. Soy gives you gas and hemp boosts your immune system.

**Major Health Benefits**

Hemp has a very wide variety of health benefits. Not only does it provide a healthy and balanced diet but can be used to boost immunity and has positive beauty effects also. Hemp is very high in essential fatty acids. What are essential fatty acids? They are acids that are not created by the body so they must be consumed in the foods that we eat. The major problem in the food stores today is that when you buy a product it has usually been packaged days or even weeks before you buy it. Once the product has around a half shelf life the EFA's are almost devoid. Lack of proper EFAs can contribute to vast health problems and issues such as loss of hair, eczema, liver and kidney degradations, heart and circulatory problems, high blood pressure and arthritis like conditions.



This chart compares a few different nut and seed oils and their essential fatty acids. Hemp (the fourth column from the left) contains two EFAs that none of the other oils do. Those two acids are stearidonic acid and gamma-linolenic acid. Gamma-linoleic acid is a supplement used for treating inflammation, and auto-immune diseases. Stearidonic acid is an acid with an increased omega-3 index and is to be considered as a cardiovascular problem solving acid. As for all the other essential fatty acids listed hemp contains all of them in large amounts meaning that the supplement of hemp would be very beneficial health wise.

**Eco-Friendly**

All people hear about these days is how much us humans pollute the world with our factories and vehicles etc. and that our planet is facing grave danger unless we change the way we live. Agriculture is on the smaller end of the spectrum for the amount of pollution and degradation it does to the world but there are still issues at hand. Many of the chemicals used on crops are very harmful to the air, soil and people who might consume it. There is not really a way to completely clean a product that has been sprayed with pesticides in order to make it totally safe for human consumption. Hemp could be considered one of the best crops to grow here are a few reasons:

- Hemp is cold hardy; it can even withstand winter temperatures in Canada.
- Hemp is pest resistant (insects)
- Hemp is drought resistant
- 1 acre of hemp is as useable as 4 acres of trees, or 2 acres of cotton.
- It takes a tree 50-100 years to fully mature; hemp can mature in about 100 days.
- Hemp fuel burns clean, doesn't cause acid rain.
- Hemp fuels do not contribute to global warming or damage the ozone layer.
- Hemp paper can be recycled 7 times while tree pulp can only be recycled 4 times.

**CONCLUSION**

If a grower decides to grow hemp there is plenty of value-added products that come from the plant, not just the money for selling it. Hemp is a growing industry and with its ability to withstand so much as a growing crop it would be a good type of farming for someone to get into. Important features of hemp are as follows:

1. Value- multiple markets ( food, building supplies, paper etc)
2. Market to health- vegans, vegetarians needing protein.
3. Market to health- consumers wanting a product full of EFA and proteins.
4. Work to establish a local market for products.
5. Establish a processing plant to create products.
6. Educate the public on hems health benefits, and stress the difference between hemp and marijuana.
7. Target market- young people, vegans, and vegetarians.

## NESA FORMER VICE-PRESIDENT ATTAINS A SIGNIFICANT ACCOMPLISHMENT

**Prof. Nafees Ahmad**

**Khan**, Former Vice-President, National Environmental Science academy (NESA) and Professor in the Department of Botany at Aligarh Muslim University, has achieved a remarkable feat by securing a spot



on the Highly Cited Researchers 2023 list from Clarivate, marking his fifth consecutive appearance since 2019.

Clarivate annually spotlights the world's most influential researchers who have left an indelible mark on their respective fields, garnering widespread recognition from their peers over the past decade.

In 2023, approximately 7000 researchers globally earned this exclusive distinction across various disciplines. The Highly Cited Researchers list acknowledges individuals who have consistently produced top-tier papers, ranking in the top 1% by citations in the Web of Science, showcasing their significant influence and pioneering contributions to their field.

Prof. Nafees is acknowledged worldwide in the research community, serving as a prime example of excellence in the fields of plant science.

National Conference  
On


## Recent Trends & Challenges in GREEN CHEMISTRY, POLLUTION CONTROL AND CLIMATE CHANGE [GPCC-2023]

14<sup>th</sup> – 16<sup>th</sup> December 2023  
Venue: CSIR – National Botanical Research Institute, Lucknow



National Environmental Science Academy (NESA), New Delhi

Jointly Organized by



CSIR-National Botanical Research Institute, Lucknow

**Thematic Areas of the Conference - GPCC-2023**  
Abstracts can be submitted under the following sub-themes

- 1. Pollution and its Mitigation**
  - ❖ Air Pollution and Mitigation
  - ❖ Water Pollution and Mitigation
  - ❖ Soil Pollution and Mitigation
  - ❖ Wastewater Utilization
  - ❖ Waste Management
- 2. Climate Change**
  - ❖ Climate Change Mitigation
  - ❖ Climate Smart Agriculture
  - ❖ Renewable Energy
  - ❖ Application of Remote Sensing and GIS
- 3. Green Chemistry**
  - ❖ Alternative and Efficient Sources of Energy
  - ❖ Green Technologies for Zero-waste Processes and Products
  - ❖ Green Nanomaterials for Environmental and Agricultural Applications
  - ❖ Cleaner Production
- 4. Environment and Biotechnology**
  - ❖ Environmental Microbiology and Bioremediation
  - ❖ Environmental Biotechnology
- 5. Natural Resource Management**
  - ❖ Biodiversity Conservation
  - ❖ Environmental Degradation and Eco-restoration
  - ❖ Geospatial and Ecological Modelling
- 6. Contemporary Areas**
  - ❖ Environmental Impact Assessment
  - ❖ Environmental Risk Management
  - ❖ Environmental Protection
  - ❖ Environmental Sustainability and Development
  - ❖ Environmental Education and Sustainable Developments Goals

**SUBMIT ABSTRACT**  
[nesalucknowconference2023@gmail.com](mailto:nesalucknowconference2023@gmail.com)

**IMPORTANT DATES**

<b>Conference Dates</b>	14th to 16th December, 2023
<b>Registration and Abstract Submission Starts:</b>	10.07.2023
<b>Last Date of Registration without late payment:</b>	31.10.2023
<b>Abstract submission Deadline:</b>	31.10.2023
<b>Intimation of acceptance of abstract:</b>	07.11.2023

**REGISTRATION**

	Regular Registration (Till 31.10.2023)	Spot Registration* (After 31.10.2023)
<b>Academicians &amp; Scientists</b>	INR 5000.00	INR 6000.00
<b>Research Scholars/ Fellows</b>	INR 2500.00	INR 3000.00
<b>Students (PG)</b>	INR 1500.00	INR 2000.00
<b>Corporate Delegates</b>	INR 10000.00	INR 12000.00

**PAYMENT**

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## IMPORTANT DAYS, EVENTS AND FESTIVALS IN THE MONTH OF DECEMBER 2023

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### 2 December- National Pollution Control Day



This day is commemorated to raise awareness about pollution and its negative consequences. It is commemorated to honour the victims of the Bhopal Gas Disaster.

### 2 December- International Day for the abolition of slavery

This event is being held to raise awareness about human rights violations such as slavery.



### 3 December- World day of the handicapped



This day raises awareness about the importance of welcoming people with disabilities. "Transformative solutions for inclusive development: the role of innovation in fueling an accessible and equitable world."

is the theme for IDPD 2023.

### 5 December- International Volunteer Day

This day is commemorated to honour the contributions and efforts of volunteers and organizations.



### 5 December- World Soil Day

"Soils: Where food begins" is the theme for 2023. This day is celebrated for raising awareness about the importance of soil and healthy ecosystems.



This is another notable day in December when contributions are collected from the general public and martyrs at the border are honoured.

### 7 December- International Civil Aviation Day

This is commemorated around the world to promote awareness about the socio-economic growth of countries and the role of the International Civil Aviation Organization (ICAO) in international air transport.



### 9 December- International Anti-corruption day



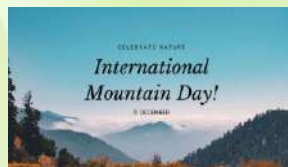
This is observed to demonstrate how corruption harms health, education, democracy, justice, and development.

### 10 December- Human Rights Day

This day is marked to safeguard all people's human rights and freedoms around the world. This day is observed to protect the human rights and freedom of all individuals globally.



### 11 December- International Mountain Day



This day is commemorated to teach young children about the importance of mountains in human lives.

### 11 December- UNICEF Day

Every year on December 11, UNICEF Day is commemorated. On December 11, 1946, the United Nations General Assembly established UNICEF as the United Nations International Children's Emergency Fund in order to enhance the health, nutrition, education, and general welfare of children who had been impacted by World War II.



### 14 December- National Energy Conservation Day



This day raises awareness about the need of energy conservation and the necessity for energy.

### 16 December- Vijay Diwas

This day is commemorated to honour martyrs and their sacrifices, as well as to increase the military's role.



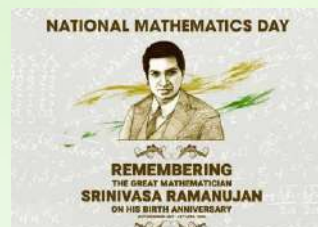
### 20 December- International human solidarity day



This is observed to show the importance of unity in diversity.

### 22 December- National Mathematics Day

The mathematician Srinivasa Ramanujan's birth anniversary is commemorated on this day.





**23 December- Kisan Diwas**  
Former Prime Minister Chaudhary Charan Singh's birthday is celebrated on this day.

**24 December- National Consumer Rights Day**



This day is marked to raise consumer awareness of their rights and obligations.

**25 December-Christmas**

This is celebrated to commemorate the birth of Jesus Christ.



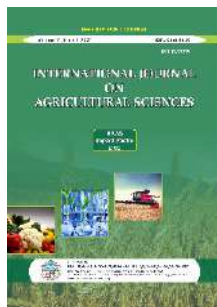
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Editorial board members of NESA newsletter will be revised for the year 2024. All the interested applicants may send their curriculum vitae to **Editor in Chief** by **15<sup>th</sup> January, 2024**.



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### **INVITATION OF RESEARCH ARTICLES for PUBLICATION in NESA Journals**

**INTERNATIONAL JOURNAL ON AGRICULTURAL SCIENCES**

ISSN NO. 0976-450X | NAAS RATING 2.60

**INTERNATIONAL JOURNAL ON BIOLOGICAL SCIENCES**

ISSN NO. 0976-4518

**INTERNATIONAL JOURNAL ON ENVIRONMENTAL SCIENCES**

ISSN NO. 0976-4534

**INDIAN JOURNAL OF UNANI MEDICINE**

ISSN NO. 0974-6056

<https://nesa-india.org/nesa-journals/>

**E-NESA Newsletter (Monthly)**

<http://nesa-india.org/newsletter/>

For further details and NOTES FOR AUTHORS, please contact Academy at [nesapublications@gmail.com](mailto:nesapublications@gmail.com) [infonesa88@gmail.com](mailto:infonesa88@gmail.com)

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