

अभिव्यक्ति द्रोहोरपुवके

PLANT- BASED

way to a
sustainable
future?

April-June
2020

Volume XI

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राष्ट्रीय खाद्य प्रौद्योगिकी उद्यम शिला एवं प्रबंधन संस्थान
(सम विश्वविद्यालय एवं खाद्य प्रसंस्करण उद्योग मंत्रालय, भारत सरकार के अधीन स्वायत्त संस्थान)
National Institute of Food Technology Entrepreneurship and Management
Deemed to be University [De Novo Category] UGC and AICTE Recognised
An Autonomous Institution under Ministry of Food Processing Industries, Government of India



NIFTEM

KNOWLEDGE • INNOVATION • OUTREACH



+

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Contents

.....

1. Vice Chancellor's Message
2. Plant-Based Lifestyle: way to a sustainable future?
3. High-Moisture Cooking Extrusion Processing
4. Know a fruit- Coconut
5. Know a spice- Saffron
6. Events at NIFTEM
 - a. Society Events:
 - Geetanjali- the literary society
 - Saarang- the cultural society
 - Centre for Entrepreneurship Development (CED)
 - Alabhayam- the technical society
 - b. Engineering Inner Happiness Workshop
 - c. FST: Insightful Webinars
7. Equal Opportunity Cell
8. Publications/Journals Corner
9. Achievement Galore

From the Vice Chancellor's Desk



NIFTEM strives to act as leading centre of comprehensive learning to serve as one stop solution for growing food industry. The innovative and world class learning environment at NIFTEM equips the students with required skills and ability and infuses in them a zeal and fervour, to scale great heights.

During this pandemic institutions need to change their mundane teaching methods and adapt to evolving technology-centred

teaching. When every student's home became his institute and the learning institutes became virtual institutes, there are few challenges one has to face at the initial stages. Faculty plays the most important role in such a system. NIFTEM faculty through his experience /skills in online teaching accepted this challenge and established themselves as “competent” individuals who can deliver what the students expect.

It is hearting to note that as a result of a highly supportive and proactive academic environment in NIFTEM, all the departments have conducted various webinars, workshops and panel discussions. NIFTEM conducted Happiness Technology Workshop for its students as a part of completing exercise for Induction Programme. Students' societies have conducted various events using online platform.

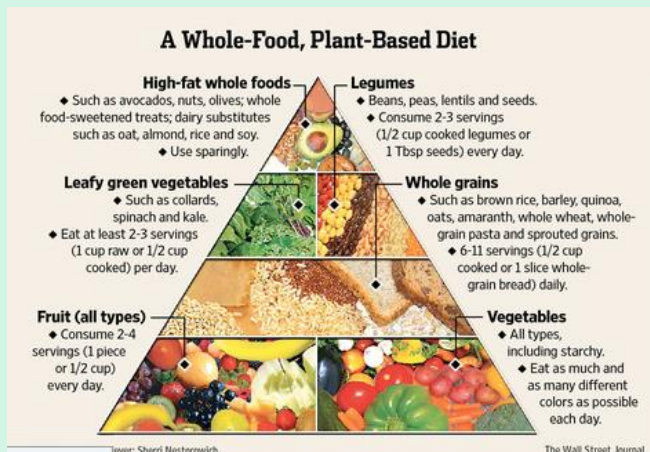
In coming days as well, NIFTEM aims to focus on research and develop innovative solutions to technological challenges being faced by food processing sector. Going forward, the use of technology in teaching will lead to a new era wherein the best of faculty will be available from across the globe to students. Education quality will be determine by the availability and quality of IT infrastructure and faculty who are equipped with digital teaching technologies as important parameters. I hope each NIFTEMite would leave no stone unturned to make NIFTEM an epitome of excellence.

ALL THE BEST!

Dr. Chindi Vasudevappa

Plant-Based Lifestyle: way to a sustainable future?

A plant-based diet is a diet that consists mostly or entirely of foods that are derived from plants, and may include few or no animal products. Also, there's a difference between plant-based diets and veganism. Vegan diets eliminate all animal-based products, whereas plant-based diets may include few animal products (eggs, meat, dairy, gelatine).



Many people are shifting to plant-based diets, with newer meat alternatives hitting the shelves. But why has this revolution come? Why is everyone trying to eat plant-based foods? Let's find out!

Environmental Impact

Plant-based diets are more sustainable relative to diets that are high in animal products, because they consume far less natural resources, and are much safer for the environment. Given the explosion of the global population and the increase in wealth, the demand for foods of animal origin is increasing. Environmental data

are accumulating rapidly on the unsustainability of current food consumption practices around the world high in meat and dairy products. Natural non-renewable resources are increasingly scarce, and rapidly rising environmental deterioration.

Food security and food sustainability are on a collision course at the current trends of food consumption and changes in the environment. Changing course (to avoid the collision) will require extreme downward shifts in the consumption of meat and dairy by large segments of the world population. Other strategies, such as food waste prevention and agricultural precision and/or other scientific developments, must be followed simultaneously; however, they are inadequate to support the global food system. Meatless diets were promoted on the basis of principles for decades and significant portions of the world's population thrived on plant-based diets.

"Going back" to worldwide plant-based diets seems a reasonable alternative for a sustainable future. Policies for globally adopting plant-based diets will

simultaneously optimize the outcomes of food supply, health, environment, and social justice for the world's population. Implementing such a policy on nutrition is perhaps one of the most rational and moral pathways for a sustainable future of the human race and other living creatures of the biosphere that we share.

Sustainability


Sustainability terms typically cover facets of ecology, culture, and society and have varying interpretations based on context. For consumers, a balanced diet won't automatically be described in the same way as for farmers or food producers.

In 2010, the FAO defined sustainable diets as "the low-impact diets that contribute to food and nutrition security and a healthy life for present and future generations.

Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources”

Meat and dairy products are largely responsible for a significant share of the natural resource use and the environmental cost of food processing as compared with plant foods. However, looking at eating






Habits is a more holistic and practical approach when evaluating the environmental effects of manufacturing food for human consumption, rather than specific foods. We previously compared the environmental impacts of processing foods eaten differently by California's vegetarians and non-vegetarians and found that the agricultural inputs needed for the non-vegetarian diet were 2.9 times more water, 2.5 times more primary energy, 13 times more fertilizer and 1.4 times more pesticides than for the vegetarian diet.




ENVIRONMENTAL IMPACT

- LIVESTOCK COVERS 45% OF EARTH'S TOTAL LAND
- ANIMAL FEED PRODUCTION USES 1/3 OF ARABLE LAND
- COWS PRODUCE 150 BILLION GALLONS OF METHANE EVERY DAY
- 1,000 GALLONS OF WATER ARE REQUIRED TO PRODUCE 1 GALLON OF MILK
- THE LIVESTOCK SECTOR IS RESPONSIBLE FOR 18% OF GREENHOUSE GAS EMISSIONS WORLDWIDE

EVERY DAY ON A PLANT BASED DIET YOU SAVE:

-  1100 GALLONS OF WATER
-  40 POUNDS OF GRAIN
-  20 POUNDS OF CARBON DIOXIDE
-  30 SQUARE FEET OF FOREST
-  1 ANIMAL'S LIFE

CHAPMAN UNIVERSITY
OFFICE OF SUSTAINABILITY



BENEFITS OF EATING PLANT-BASED

Past Scenarios

Previously, putting more land into agriculture and exploiting fish stocks was the main solution to food shortages. These are not options which are sustainable. The intensification of current underperforming agricultural ecosystems is not growing either. Closing the food yield gap would take new strategies when addressing sustainability targets, including shifting traditional agriculture to more low-input and precision methods.

It is estimated that waste and losses in the supply chain account for more than a third of the world's food produced.

Huge portions of the world's population have thrived on diets of little to no nutrition for centuries. However, the concept of eating meat as the paramount source of protein in the past century has become deeply embedded in Western countries' psyche and culture, and is now pervading many other cultures and nations. Undertaking a dramatic downshift in meat consumption would pose significant challenges and resistance at several levels: taste habits of the consumer; other cultural traditions; existing societal norms; economic factors such as livestock industry; and current national and international food policy. Several ideas were brought forward for the transition from animal protein to plant-based protein.

Many of them include public awareness that reflects on the environmental and

nutritional benefits of plant-based diets, encouraging dietary standards focused on safety and sustainability parameters, designing enticing and culturally appropriate plant-based meat-alternative foods, and realigning existing fiscal policies (meal subsidies and taxation) with quality and environmental requirements.

Reducing food waste could significantly improve food security, while reducing environmental degradation at the same time. Improving food yields, reducing the environmental impacts of agriculture and reducing waste are needed but are not enough strategies to ensure global food security. Realigning the agricultural and dietary requirements will provide more calories. Shifting diets worldwide from animal-based to plant-based diets is of vital significance in meeting targets for food stability and sustainability. Decreasing meat and other animal products consumption would open up vast quantities of food that could be eaten directly by humans — such as soy and grain.

Conclusion

Plant-based diets are more nutritious relative to meat-based diets, as they consume considerably fewer agricultural resources and are less economically harmful. The population boom around the world and the rise in demand for animal feed make the food supply unsustainable. Meat and food security are on a collision course. Changing course (to avoid the collision) will require extreme downward shifts in the consumption of meat and dairy by large segments of the world population.

Although other strategies should be followed, they are inadequate to make the global food environment viable and therefore the dietary change is an imminent tactic.

Written by: Amulya Sharma, BTech. 3rd Year

High-Moisture Cooking Extrusion Processing

Extrusion Cooking to aid the advent of plant-based meats

Introduction:

For the past few years, there has been a huge increase in the demand, production, and development of plant-based products, including meat, eggs, dairy, and seafood, which has ultimately opened doors for several opportunities. Various novel and better techniques and technologies are the keys to these huge opportunities for all the food product manufacturers and developers.

Extrusion is one of the processes which can be used to produce plant-based meat and seafood. It has a long history and has been extensively used for the development of puffed snacks, kinds of pasta, bars, etc.

High Moisture Extrusion processing is a technique used to produce a replica of animal meat in terms of textures.

So, before diving more into this technology, let me give you a brief description of plant-based Meat.



Plant-based Meat is a product made from one or a combination of plant protein sources, in which several ingredients like flavourings, colorants, binders, etc are also added to make the final product mimic an animal-based Meat, by replicating its functional and organoleptic properties.

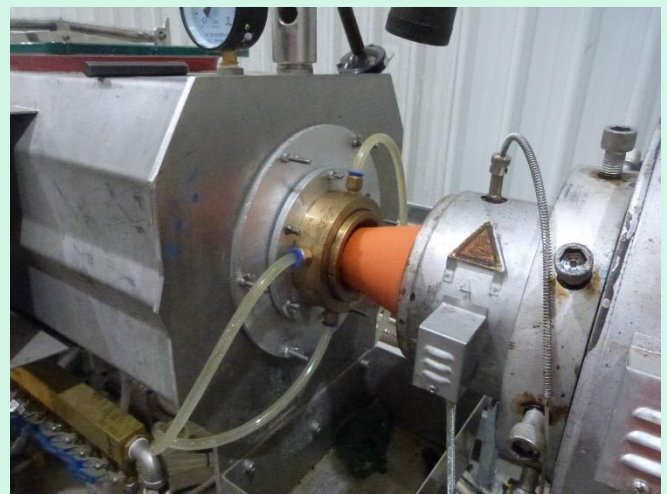
Various food companies like Impossible Foods, Beyond Meat, Quorn, etc are developing plant-based Meat products and the number of plant-based companies is gradually increasing.

History associated with Extrusion Processing:

- The 1870s- An extruder was designed to manufacture sausages.
- The 1950s- extruded pet food production.
- 1957- Purina Dog Chow manufactured first extruded dog food and the first extruded cat food was manufactured in 1962 by Purina Friskies.
- 1964- MC. Anelly was the first one to elaborate on the process involved in the development of elastic and spongy particles by using soy.
- 1970- Atkinson introduced a continuous cooking extrusion process
- 1981- EL-Dash was the first to process breakfast cereal products.
- 1998- Noguchi introduced the extrusion cooking of high Moisture protein foods.
- 2000- Fast manufactured RTE cereals.
- 2011- the concept of degradation of aflatoxins by extrusion was introduced
- 2011- Oat based breakfast cereal snack came into the market.

What is Extrusion?

Extrusion is all about converting several ingredients/inputs into a continuous mass of a semi-solid state (output).



The machinery used for this process is equipped with a screw system (single or double/twin) in a barrel which conveys the mixture of ingredients, water and/or oil from one end to another. Throughout this process, the mixture undergoes several exposures including heat, moisture, pressure, and mechanical energy.

The continuous mass comprising of protein strands is then allowed to pass through the die section where it is cooled. The viscosity increases and the mixture replicates the meat structure, which can be cut into various lengths depending on the requirements. This wet Texturized Vegetable Protein (TVP) can also be dried

to produce Dry Texturized Vegetable Protein.

Preferred Equipment- Twin Screw Extruder:

For high moisture cooking extrusion process, twin-screw extruder is the most common equipment used to produce Texturized Vegetable Protein (TVP).

It comprises of co-rotating screws inside a long barrel and a cooling die section.

Throughout this process, the plant proteins unfold, crosslink, and align themselves to form macro as well as microscopic fibres.

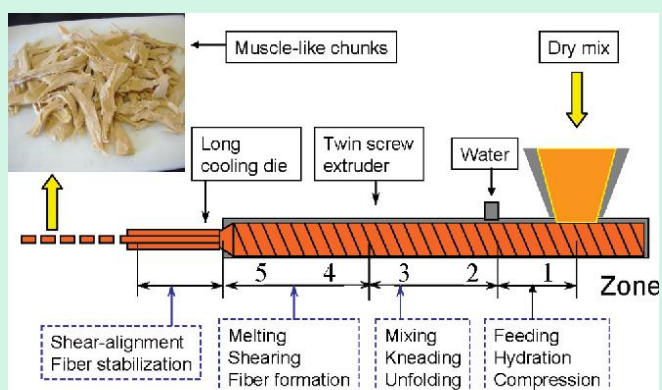


Figure 1. Scheme of a twin-screw extruder for high-moisture extrusion

Working

As the name suggests, this process involves the use of water levels up to 70%. It is a hydrothermal process, which provides all the necessary conditions of temperature, moisture, and pressure required to produce a continuous mass of protein (TVP).

STEP1: Ingredients, specifically food protein powders and water (oil can also be added) are continuously fed into the barrel.

STEP2: The co-rotating screws perform two functions- first to mix the ingredients

thoroughly and second to convey the mixture from one end to the die section. Steady exposure to heat at a temperature range of 130-180°C is used. The screws compressed the mixture and increase the pressure. This hydrothermal conditions unfold the proteins and allow the formation of new covalent intermolecular bonds. In this way, the cross-links are made.

STEP3: As soon as the mixture enters the die section, it is cooled and with the help of drag and shear flows, the alignment of crosslinked protein takes place (in the direction of flow). The die section not only provides cooling but also makes sure that the product doesn't expand due to the evaporation of the superheated water. Moreover, several bonds including non-covalent hydrogen bonds, Van Der Waals, and electrostatic interactions also develops which further stiffen the mixture by increasing its viscosity.

STEP4: The final Meat-Like semisolid strand is called the Texturized Vegetable Protein which can be further treated with several Post-extrusion operations like marination, coating, drying, etc to develop desired products.

Some of the factors affecting the efficiency of the process-

- The quantity of water used.
- Variety of ingredients
- The temperature and pressure conditions.

- Length of the barrel.
- Speed of the rotation of the screws.

***Written by: Manjari Sharma, BTech.
3rd Year***

Know a Fruit: Coconut

In contrast to the common perception, Coconut is not a nut but the fruit of the coconut palm (*Cocos nucifera*).

The name comes from the ancient Portuguese and Spanish word *coco*, meaning 'head' or 'skull' after the three indentations on the coconut shell that resemble facial features.

They are ubiquitous in coastal tropical regions and are a cultural icon of the tropics.



Botanically speaking, coconut is a fibrous one-seeded drupe and is also known as a dry drupe. But, when using loose definitions, the coconut can be all three: a fruit, a nut, and a seed as well. It is arguably one of the most useful trees in the world. It is often referred to as the "tree of life" as it provides food, fuel, cosmetics, folk medicine, and building materials, among many other uses. A wide range of

subsequent products like coconut milk, coconut cream, etc. are also obtained from the coconut fruit.

History and origin

According to the literary evidence from the Ramayana and Sri Lankan chronicles, coconut was present in the Indian subcontinent even before the 1st century BCE. The American botanist Orator F. Cook proposed a theory in 1901 about the origin of *Cocos nucifera*. It was based on its current worldwidedistribution. Accordance to the same, coconut originated in the Americas.

Modern genetic studies have identified the center of origin of coconuts as being the region between Southwest Asia and Melanesia. Here, it shows the greatest genetic diversity. Their cultivation was spread majorly due to the early migrations of the Austronesian peoples who carried coconuts as canoe plants to islands they settled. Currently, the largest producers of coconuts are Indonesia, the Philippines, and India.

Plantation and Propagation

Coconut is a cash crop but in some aspects, it is also considered as a food crop. This is because coconut flesh and subsequent

products like oil, coconut milk, etc. find an integral place in the residents' diets.

The coconut palm can grow in a variety of soils and climatic conditions. The ideal climatic conditions for good growth and yield of coconut crops are temperature around $27 \pm 5^\circ \text{C}$ and humidity more than 60 percent.

The coconut palm can grow well up to an elevation of 600 m above MSL. It can even tolerate a wide range of intensity and distribution of rainfall. In areas of inadequate and uneven distribution of rainfall, proper irrigation facilities are necessary.

Coconut is propagated through seedlings raised from selected seed nuts. Generally, 9 to 12-month-old seedlings are used for purpose planting. Seedlings which have 6-8 leaves and 10-12 cm collar girth when they are 9-12 month old are considered to be the best. Early splitting of leaves is yet another criteria for the selection of coconut seedling.

No particular treatment for germination is done but the speed of germination varies within the different ecotypes. Generally, 90% of the seeds germinate while the remaining 10% are discarded mainly due to pathogenic infections.

Nutritional Profile

While coconut oil and coconut milk are becoming more popular as the 'healthy options', the origin of these products i.e. the coconut flesh is not any less when it comes to the nutritional profile.

The coconut flesh is also referred to as coconut meat sometimes.

1 cup (80 grams) of fresh shredded coconut flesh/meat contains:

Nutrient	Amount
Calories	283
Protein	3 grams
Carbohydrates	10 grams
Fat	27 grams
Sugar	5 grams
Fiber	7 grams

It also contains an appreciable amount of minerals like magnesium, selenium, copper, phosphorus, potassium, iron, and zinc.

The magnesium content supports enzyme function and fat metabolism while the copper content promotes bone formation and heart health.

The fat is largely made up of medium-chain triglycerides (MCTs), which are absorbed intact in the small intestine and used by the human body to produce energy.

Since it is low in carbohydrates and high in amino acids, it can even help in regulating blood sugar levels.

The phenolic acid content imparts antioxidant properties and helps to protect cells from oxidative damage.

Uses

Dried coconut flesh is also called Copra. The oil and milk obtained from the coconut flesh are majorly used in cooking.

Coconut milk is hugely popular as the plant-based alternative for milk while coconut oil is widely used for frying purposes.

Coconut oil also finds use in the formulation of soaps and many cosmetic products.

The hard shells, fibrous husks, and long pinnate leaves can be used as material to make a variety of products for furnishing, decoration, brooms, and many other utilities.

The same is used for making cooking utensils as well.

By-products of the coconut milk production process are potential plant-based meat analogues.



In earlier times, the leaves and fibrous husks were used to build houses.

Fun facts

- Coconut water is known to have the same electrolyte levels as human plasma, and has been used for plasma transfusions!



- Coconut oil is used in a variety of cosmetic applications, more than any other fruit.

Coconuts, in different forms, are anti-viral, anti-fungal, anti-bacterial, and anti-parasite.

- Falling coconuts cause death, although only a small amount. 2.5% of injuries in Papua New Guinea Provincial Hospital were reported as caused by falling coconuts. A very small number of those killed the patient.

- A coconut tree can have up to 180 coconuts harvested during a single harvest.
- The husk of coconut can actually be burnt to act as a natural mosquito repellent, a process used in many countries around the world.

Written by: Neha Kundu, BTech. 3rd Year

KNOW YOUR SPICE: SAFFRON (KESAR)

Saffron or kesar is a well-known spice commonly used as a seasoning and colouring agent in food. It is known for its characteristic colour, strong, exotic aroma and a bitter taste. It is obtained from the crimson red dried stigmas and styles of *Crocus sativus* flowers. Iran is the world's largest producer of saffron. In India, saffron is mainly produced in Jammu and Kashmir and Himachal Pradesh. It is the world's most expensive spice, due to its unique characteristics and the intensive labour involved in its harvesting.



CHEMICAL COMPOSITION

Saffron contains about 150 volatile and aroma yielding compounds mainly terpenes, terpene alcohol and their esters. It also has non-volatile active components, like

carotenoids including zeaxanthin, lycopene, and various α - and β -carotenes. Crocin, a carotenoid pigment is mainly responsible for the colour of stigmas.

Saffron derives its bitter taste from a glucoside picrocrocin. Picrocrocin is the precursor to Safranal which gives saffron its flavour and aroma.

Source: *Crocus sativus* L.: A comprehensive review by R. Srivastava

CULTIVATION AND HARVESTING

Saffron is vegetatively propagated by saffron bulbs or corms, which are underground plant stems. It grows best in warm sub-tropical climate and can be grown at 2000 meters of mean sea level. A period of 12 hours sun light is desirable. It needs well drained clay soils with high calcium and organic content. Saffron is hand harvested around the flowering season of October-November. The first step of the harvesting process is picking the flowers and separating them into the red stigmas, yellow centred stamens and purple petals. It is

generally recommended to pick flowers when they are fully elongated and begin to open up. Separation of stigmas from stamens and petals should be done as soon as possible after picking. The stigmas are then generally sun dried and the final product can be stored in paper, cloth or containers. Flowers between 70,000 to 2,00,000 may be needed to produce 1 kg of saffron threads.

USES

Saffron, the ‘golden spice’ is used as culinary seasoning and colorant in a wide range of foods.

Cream or cottage cheese, chicken and meat, rice, mayonnaise, bouillabaisse, liquor and cordials are some foods that are generally spiced with saffron. Saffron has found its place in many European and Asian cuisines. It is often used in high quality milk/cream based confectionaries and Mughlai dishes in India to which it imparts a rich color and distinct flavour. It is also one of the ingredients in dehydrated foodstuff mixes, soups, ice creams and many other processed food products.



Saffron is also used as a fabric dye particularly in India and China and as a perfume in cosmetics. Saffron has been long used as a folk medicine and in Ayurveda as a sedative, aphrodisiac and expectorant. It is also used for religious purposes in India.

HEALTH BENEFITS

- Antioxidant properties -Saffron contains variety of compounds which act as antioxidants and prevent the formation of free radicals. These saffron antioxidants include crocin, crocetin, safranal, and kaempferol.
- Antidepressant- Recent studies suggest that saffron is administered with antidepressant drugs and may help reduce depression in adults with persistent depressive symptoms. It can help treat symptoms of mild to moderate depression.
- Anticancer properties- As saffron is high in antioxidant properties, it has also been linked to anticancer properties. Some test-tube studies have found that crocin may make

cancer cells more sensitive to chemotherapy drugs.

- Antidiabetic properties-It has been observed that saffron can reduce blood sugar levels and increase insulin sensitivity.
- Reduces the risk of glaucoma- A study suggests that saffron extract may prevent the onset of glaucoma, which is a neurodegenerative disease characterized by the loss of retinal ganglion cells and causes blindness.
- Reduces risk of heart diseases: Animal and test-tube studies suggest that saffron may lower blood cholesterol and prevent blood vessels and arteries from clogging.
- Skin care- Saffron is also considered good for the skin and is used for the treatment of acne and dry skin. It is used as an anti-blemish agent and anti-ageing agent in cosmetics.

Written by: Dwiti Gagar, BTech. 3rd Year

Events-NIFTEM

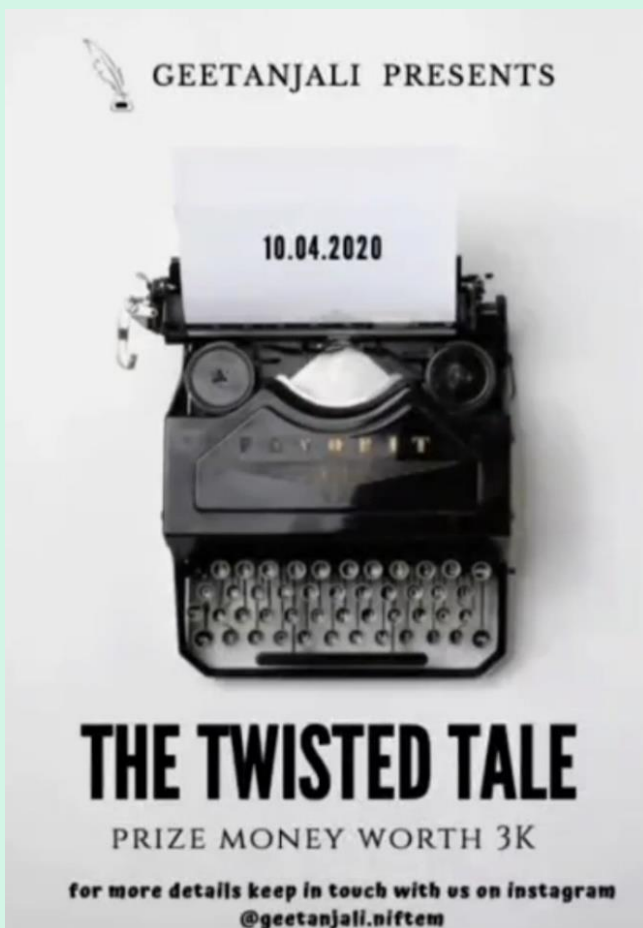
Student Society Events:

- *Geetanjali: The literary society*

1. A Twisted Tale (Online)

(Date 10.04.2020)

A Story writing competition where people get a chance to bring out their inner fan and write an alternative ending to one of their all-time favourite stories.



2. The URBAN MUSE

(04.05.2020 , 06.05.2020 and 12.05.2020)

The first round was a pop quiz, the selected teams from which went to the next phase.

The second phase was a character auction, where participants bid to buy the characters.

They were, then, required to form a story out of those characters they bought. The characters were famous figures from books, movies and TV series.

1 Solve a quick Online quiz to move forward in the competition
04.05.2020

The Quiz

2 Bid for your favourite characters and make a character pool which will be used in the next step of the competition
06.05.2020

The Auction

12.05.2020

Story-writing

Great! Now that you have your characters freshly bought and ready, brew them with a mix of enticing words, plot twists and create the best possible story

3

GEETANJALI PRESENTS
The Ultimate Competition
THE URBAN MUSE
PRIZE POOL OF 7500!

For more details
Contact:
Vishaal- 8199068647
Ishleen-9850289660

- *Saarang: The cultural society*

1. **Live Singing Concert: Ms. Shirin, and Mr. Joy on Instagram**
(01.04.2020)



Joy Sareen, a student at NIFTEM (passed out in 2019, BTech); and Shirin Kaul, a student at NIFTEM (passed out in 2020, BTech); came together on Instagram Live, to showcase their beautiful voices. Ms. Kaul was known as the Nightingale of NIFTEM, when she was a student here.

2. Live Singing Concert: Ms. Manasi Roy on Instagram
(18.04.2020)



Manasi Roy, a student at NIFTEM (passed out in 2020, MTech), came on Instagram Live to showcase her bold and powerful voice.

3. Cordial Conversation with Seniors
(14.05.2020)

Saarang Society called upon NIFTEM alumni, and had a panel discussion regarding placements, experience, guidance, etc.

4. Live Singing Concert: Rajiv Ranjan on Instagram

(02.05.2020)

Rajiv Ranjan is a student at NIFTEM, BTech 2nd year. He came on Instagram Live, and showcased his great singing talent.



5. Logo Design Contest

(18.05.2020)



Participants were asked to design a new logo for Saarang Society.

6. Just Qua.Rant.Time Things: Instagram

(27.05.2020)



Atharva Pharande is a BTech 3rd Year Student, at NIFTEM. He is an upcoming stand-up comic, and came on Instagram Live, for a comedy session with students.

▪ *Centre for Entrepreneurship Development (CED)*

CED organized these live webinars, on platforms like Zoom and WebEx.

1. Mr. Vishal Kumar, Founder & CEO of Learning While Travelling (LWT) on importance of travelling for an entrepreneur (02.04.2020)
2. Ms. Priyanka Madnani, Founder & CEO of Easy to Pitch on How to pitch to investors (03.04.2020)
3. Ms. AnuMeena, Founder of Agrowave on Journey from village to an entrepreneur (05.04.2020)
4. Mr. Ashish Khare, Founder of Mentorkart, on Networking while learning (07.04.2020)
5. Mr. Kamaljeet Singh, Founder of AdmirablePro, on Role of FP&A for the success of start-ups (08.05.2020)
6. Mr. Chirag Kenia, Founder & M.D. of Urban Platter, on Plant-Based foods driving innovation & future consumer needs (23.04.2020)

7. Ms. SakshiChandraakar, Career branding Coach, an image enhancer & Certified soft skill trainer on Career & Personal Branding (25.07.2020)
8. Mr. Christian Nguyen Cadeo, Venture Capiatlist, Ex-Google & Microsoft, on Alternative Protein FDI in India (05.05.2020)



They also organized the following Instagram Live sessions:

1. **MADHUR ARORA**

Founder and CEO Monk Foods

Topic: Journey of An Entrepreneur

Date: 22 May 2020

2. **YUKTA**

Flavourist at GIVAUDAN

Topic: The Art of Creating Flavours

Date: 7 June 2020

3. **VARUN MAYYA**

Founder and CEO Avalon Labs

Topic: Fireside chat on Ed-tech Industry and upcoming technologies in the same.

Date: 10 June 2020

4. **SHUCHIR SURI**

Founder and CEO Food Talk India

Topic: Fireside Chat on Beverage Industry and its recovery post Covid-19.

Date: 13 June 2020

5. **AKASH MEHTA**

Founder of Fable and Mane and Akash Agency

Topic: Entrepreneurship and Mindfulness

Date: 16 June 2020



▪ **Alabhayam-the technical society**

1. Virtual Workshop on "Reputation:The X factor for a Successful Business".

Eminent speaker: Dr. Ruchi Srivastava, Former Head of Food Safety, Bharti Walmart, Cash & Carry Operations in India.Presently, working as Consultant in Food Industry.

Date: 13.06.2020

ALABHYAM THE TECHNICAL SOCIETY **NIFTEM** **Virtual Panel Discussion**

Exclusive Session: The Power of LinkedIn & Personal Branding

Meet the Panelists **Moderator**

DRAVISHA KATOCH
LinkedIn Expert | Marketing Strategist
Founder, Learn for Less,
Dravisha.com

RISHABH GARG
Process Engineer
Entrepreneur
Tetra Pak India Pvt. Ltd.

Dr. Vinkel Arora
Assistant Professor
NIFTEM

In association with **AFSTI** Empowering the Food Professionals NIFTEM CHAPTER

President:Dr. P. K. Nema
Secretary:Er. Vijay Singh Sharanagat

19th JUNE 2020
5:30Pm

For more info: Riya | 7906510475 Rajneet | 7758958747

- Organized a Virtual Panel Discussion 2.0 on the topic " The power of LinkedIn & Personal Branding" by Dravisha Katoch: LinkedIn Expert, and Rishabh Garg: Entrepreneur and Process Engineer at Tetra Pak India Pvt. Ltd. Date: 19.06.2020



NIFTEM Knowledge. Innovation. Outreach | **ALABHYAM** THE TECHNICAL SOCIETY

VIRTUAL WORKSHOP 3.0

REPUTATION: THE X-FACTOR FOR A SUCCESSFUL BUSINESS

In association with

AFSTI
Empowering the Food Professional
NIFTEM CHAPTER

President: Dr. P.K. Nema
Secretary: Er. Vijay Singh Sharnagat

Speaker
Dr. Ruchi Srivastava
Former Head of Food Safety, Bharti Walmart, Cash and Carry Operations in India. Presently, Consultant, Food Industry

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June 13th 2020
4pm onwards

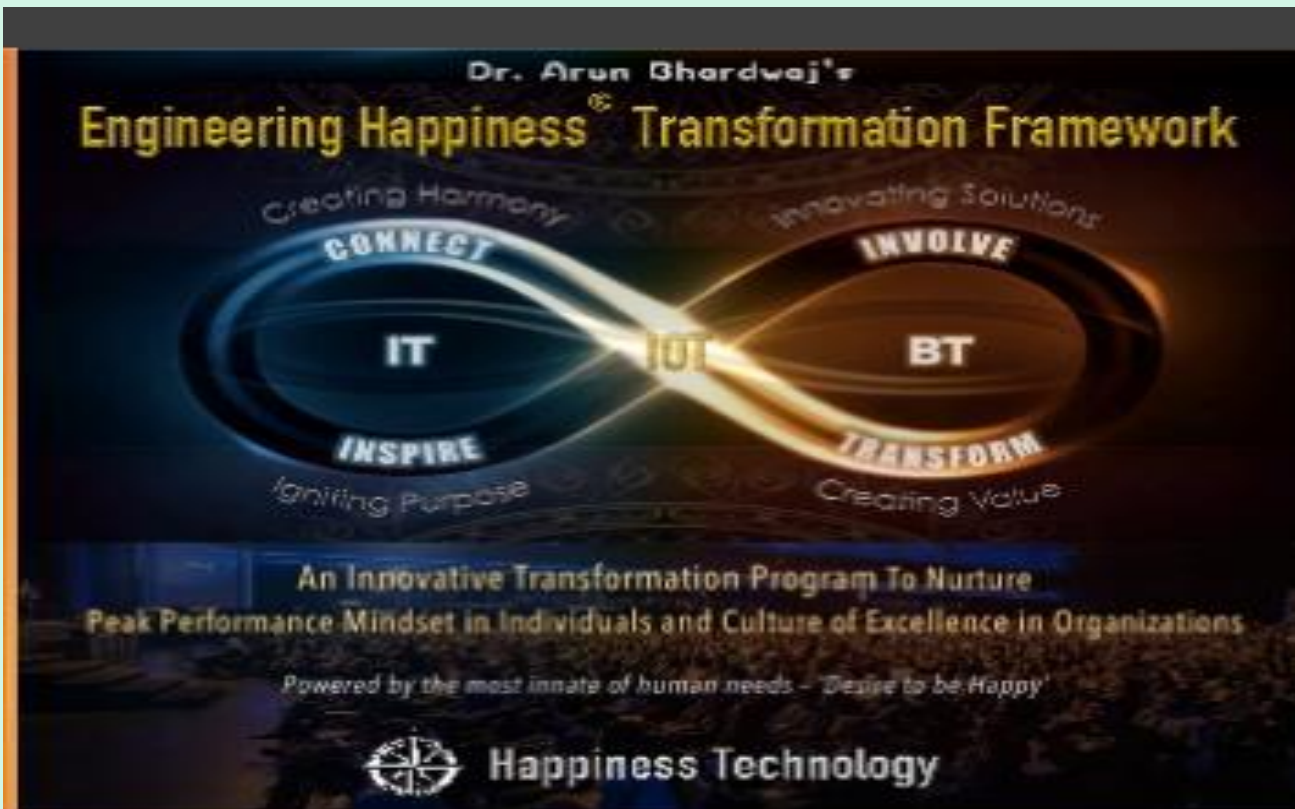
Engineering Inner Happiness Workshop:

NIFTEM conducted Happiness Technology Workshop for its students as a part of completing exercise for Induction Programme. It covered the components of good human values, Inner engineering, mindfulness and motivational aspects. The workshop was conducted by Dr Neeraj, Associate Professor, NIFTEM (Department of Agriculture and Environmental Sciences), Dr Arun Bhardwaj, Founder: Happiness Technology and Dr Shekhar Agnihotri, Assistant Professor, NIFTEM (Department of Agriculture and Environmental Sciences)

The workshop was conducted through online platform (Webinar jam)

(17.06.2020-21.06.2020)

Schedule time: 11AM to 12:30 PM (1.5 hour each day)



FST Department: INSIGHTFUL WEBINARS

1. Webinar on “**Micronutrient fortification in combating malnutrition**” was organized on 23rd June 2020 at 11.00 AM coordinated by **Dr. Komal Chauhan** (HoD FST) with co-coordinator **Dr. Tanya L. Swer** (Asst. Prof., FST). The programme was conducted with the aim to raise awareness on the importance of micronutrients in combating malnutrition and boosting the immunity.

Key speakers for the webinar were:

- Dr. Zubeda Tumbi (Founder & Director, Health watch Nutrition Clinic, Mumbai),
- Ms. Rohini Saran (Deputy Lead, Food Fortification Resource Centre, FSSAI, Ministry of Health and Family Welfare, GOI) and
- Dr. Sirimavo Nair (Professor (Foods and Nutrition), The Maharaja Sayajirao University of Baroda, Gujarat.

Dr. Zubeda Tumbi delivered a talk on “Enhance your immune-competence through right balance of Micronutrients and Macronutrients with everyday foods”, Ms. Rohini Saran presented on “Combating Micronutrient Malnutrition: Food Fortification and Regulatory Provision” whereas Dr. Sirimavo Nair presented her lecture on “Food Fortification- A strategy to address micronutrient malnutrition”.

2. Webinar on “**Preparing and Management of Research Projects in Food Technology and Allied Sectors**” was organized on 26th June 2020 at 11.00 AM coordinated by **Dr. Komal Chauhan** (HoD FST) with co-coordinator **Dr. Tanya L. Swer** (Asst. Prof., FST).

The programme was conducted with the aim to help faculties, scientists and students to understand and gain the ability to prepare, propose and manage research projects in Food Technology and allied sectors. The key speakers for the webinar were

- Dr. Amit Nath (Principal Scientist-Food Technology, IIFSR, Meerut, ICAR) and
- Dr. Pralhad Wangikar (Director Founder: PRADO-Preclinical Research and Development Organization).

Dr. Amit Nath delivered a talk on “Preparing and management of research projects in food technology and allied sectors” and Dr. Pralhad Wangikar presented on “Preparing and managing research projects on preclinical studies related to novel foods and ingredients”.

3. A Panel Discussion was organized on 30th June 2020 at 11.00 AM onwards coordinated by **Dr. Komal Chauhan** (HoD FST) with co-coordinator **Dr. Tanya L. Swer** (Asst. Prof., FST). The theme of the panel discussion was “**Understanding Strategies for Combating Micronutrient Malnutrition**”. The moderator of the panel discussion was Ms. Deepti Gulati. Details of key note speakers and topic are as below:

- Micronutrient and Their Role in Building Immune System During Covid Pandemic **Ms. Geetanjali Tahilramani** (Nutritionist, Hindu Rao Hospital, NRC)
- Ensuring Micronutrient Adequacy by Supplementation for Targeted Vulnerable Population Groups. **Dr. Zubeda Tumbi** (Founder & Director, Health watch Nutrition Clinic, Mumbai)
- Government Programmes Addressing Anaemia and IDD **Dr. Prema Ramachandran** (Director, Nutrition Foundation of India)
- Food Fortification Current Scenario and Future strategies **Dr. Umesh Kapil** (Professor, Epidemiology, Institute of Liver and Biliary Sciences, New Delhi)
- Food Fortification - Role of Industry in Ensuring Quality and Supply Chain for Scaling-up fortification Mr. Arun Om Lal (Vice President, Hexagon Nutrition)
- Bioavailability of Micronutrients and Innovative Technologies **Dr.Chindi Vasudevappa** (Hon’ble Vice Chancellor, NIFTEM)

4. Webinar on “**Newer sensory methods for consumer insights**” was organized by FST department on 12th August 2020. Convenor of the programme **Prof. Manjeet Aggarwal** (Director CFRA), **Prof. Ashutosh Upadhyay** (Dean, Academics) and **Dr. Komal Chauhan** (HoD, FST). The programme was coordinated by Dr. Rakhi Singh with co-coordinator Dr. Tanya Luvu Swer (Asst. Prof., FST). Keynote speaker was **Dr. Binod K. Maitin**. The programme was organized for all students, research scholars, faculty members and other professionals in Food Technology and allied areas. The webinar will enable the participants to grasp the new developments in sensory science and consumer insights.

Initiative at NIFTEM

Equal opportunity cell

NIFTEM has created an Equal Opportunity Centre with the vision to create and sustain the environment in the NIFTEM Campus which promotes equal human values while respecting the distinct cultural identities, caste, creed, and different social status. and major objectives of this centre will be to pursue and realise social inclusion and integration of marginalized sections including SC, ST, OBC, women and persons with disabilities (PwD) of the Indian society by identifying and dissuading the different types of discrimination that exist in both conscious and unconscious social behaviour. It also aims to contribute to the creation of a society that is free of discrimination and prejudice, and to promote good relations and foster a vibrant human rights culture.



Publications/Journals Corner

- 1) Kumar Yogesh , Sharanagat Vijay Singh , Singh Lochan , Nema Prabhat K. (2020) , Convective drying of spine gourd (*Momordica dioica*): **Effect of ultrasound pre-treatment on drying characteristics, color, and texture attributes**, Journal of Food Processing and Preservation (Accepted on 22.6.2020)
- 2) Babar Onkar A, Tarafdar Ayon, Malakar Santanu, Arora Vinkel Kumar and Nema P. K. (2020) **Design and performance evaluation of a passive flat plate collector solar dryer for agricultural products**. Journal of Food Process Engineering (Accepted in June 2020)
- 3) Dr Rahul Mor is developing a Special Issue on '**Food Supply Chain Management: Empirical Studies on Current Practices and Innovative Solutions**' as Managing Guest Editor, Operations Management Research journal, Springer (SCI, 2018 I.F.: 4.727, ABDC, Scopus) in collaboration with Prof. Emel Aktas (Cranfield University, London, UK), Prof. Jacqueline Bloemhof-Ruwaard, (Wageningen University & Research, Netherlands) and Prof. Sandra Transchel (Kuehne Logistics University, Germany).
- 4) Dr Mor is also developing a Special Issue on '**Impact of COVID-19 on Agri-Food Supply Chains: Safety, Technology, Economy, Policy (STEP)**' as Managing Guest Editor, International Journal of Logistics Research and Applications, Taylor & Francis (SCI, 2018 I.F.: 2.828, ABDC, Scopus) in collaboration with Prof. Anupama Singh (Dept. of F.E., NIFTEM, India), Prof. Emel Aktas (Cranfield University, London, UK), Prof. Riccardo Accorsi, (University of Bologna, Italy) and Prof. Sunil Luthra (Govt. Polytechnic, Jhajjar, India).
- 5) Book Chapter titled "**Dielectric Properties of animal source foods (ASFs) and its application for quality evaluation**" accepted for publication under book series Innovations in Agricultural and Biological Engineering to be published by Apple Academic Press, USA.
- 6) Book Chapter titled "**Detection of Pesticide in fruits and vegetables: Methods and Principles**" accepted for publication under book series Innovations in Agricultural and Biological Engineering to be published by Apple Academic Press, USA.

- 6) Kumar Rahul, Rohitash Kumar Banyal & Puneet Goswami (2020) **Analysis and processing aspects of data in big data applications**, Journal of Discrete Mathematical Sciences and Cryptography, 23:2, 385-393, DOI: 10.1080/09720529.2020.1721869
- 7) Kumar Rahul, Rohitash Kumar Banyal “ **Data Life Cycle Management in Big Data Analytics**” International Conference on Smart Sustainable Intelligent Computing and Applications under ICITETM 2020, DOI: 10.1016/j.procs.2020.06.042

8) Dr. Murlidhar Meghwal with the team of Prof N Reddy CIIRC Bangalore has published a research paper in an internationally very reputed research journal entitled: **Polymer Testing** having impact factor: 3.275 and cite score 5.1

This search is about:

Natural polymers such as proteins and polysaccharides are of great demand in packaging and medical applications.

Horse gram (*Macrotyloma uniflorum*) is a good source of protein and possesses excellent antioxidant properties. The present study investigates the development and potential applications of transparent and water-resistant horse gram protein-based films cross linked with citric acid. Films prepared were further characterized for their physical, chemical and biological properties. Films cross linked at higher concentrations (15%) of citric acid exhibited 50% reduction in water sorption and reduced water vapour permeability.

At 15% citric acid concentration, the films showed excellent free radical scavenging of up to 96%. Also, maximum antimicrobial activity against clinical isolates was observed for the 15% citric acid cross linked films. Increase in thermal stability and decrease in water vapour permeability was obtained at higher levels of cross linking. The cross linked films were cyto-compatible and showed potential to be used as substrates for cell culture. Citric acid cross linked horse gram protein films have good physicochemical properties along with biological activities and could be suitable for applications in the packaging and medical fields.

- 9) Dinkar B. Kamble, Rakhi Singh, Savita Rani, Ashutosh Upadhyay, Barjinder Pal Kaur, Nitin Kumar, Thangalakshmi S. 2020. **Evaluation of structural, chemical and digestibility properties of multigrain pasta**. Journal of Food Science and Technology, <https://doi.org/10.1007/s13197-020-04616->

Achievements

Ms. Nitya Bhargava (M.Tech., FPEM, 2nd year, 2018-20 batch student) is offered 100% scholarship for a one-year MS program in Food Business Strategy by the University College Dublin, Ireland.



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