

Online Training for Master Trainers

on

Fat and Oil Seeds Processing

01.01.2021 to 06.01.2021

Organized by

ICAR – CIPHET, Ludhiana

in association with

Indian Institute of Food Processing Technology (IIFPT)

Inaugural Session Details

Day 1: 01.01.2021 (Friday)

Session

Time: 10.15 am -10.55 am

The Training of Master Trainer's Program in the domain of Fat and Oil Seeds Processing under PM FME scheme was inaugurated in presence of Dr. Nachiket Kotwaliwale, Director, ICAR-CIPHET, Ludhiana and Dr. C. Anandharamkrishnan, Director, IIFPT, Thanjavur. The participation in training program was from 15 states having 23 participants.



Session Details

Time: 11.00 am -12.15 pm

Session Topic: Overview on PMFME scheme, guidelines, objectives, capacity building framework and its implementation.

Speaker Detail: Dr. V.R. Sinija, Professor and Head, FPBIC, IIFPT.

Session Highlights:

The session was about holistic inputs on food processing sub segments and India's position in those sub segments. The next part of the session provided overview about the PMFME scheme, various guidelines related to capacity building and introducing the concept of ODOP. Various queries were answered related to scheme assistance and ODOP.

Day 1: 01.01.2021 (Friday)

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|---------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| 11:00 am - 12:15 pm | Overview of PMFME scheme | Dr. V.R. Sinija Professor & Head, FPBIC, IIFPT |
| 12:15 pm - 01:30 pm | Engineering Properties for Quality evaluation of Fats and Oilseeds | Dr. Nachiket Kotwaliwale Director, ICAR-CIPHET, Ludhiana |
| 02:00 pm -04:00 pm | Microencapsulation techniques for oils | Dr. K. Narsaiah Principal Scientist & Head, ASEC Division, ICAR- CIPHET, Ludhiana |
| 04:00 pm - 06:00 pm | Technologies for Refining of edible oils and fats. | Dr. S. K. Tyagi Principal Scientist & PC AICRP-PHET, ICAR- CIPHET, Ludhiana |

The session involved detailed discussion on the various engineering properties available which are being used for evaluating the quality of Fat & Oil seeds. Further insights were given on the techniques used for doing the microencapsulation of oils. A detailed session was given on the technologies used for refining edible oils and fats. The session was concluded with the doubt clearing session of participants.



Day 2: 02.01.2021 (Saturday)

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| 09:30 am -11:30 am | Quality aspects of canola and groundnut oil | Dr. Virender Sardana Principal Agronomist (oilseeds), Department of Plant breeding and Genetics, PAU, Ludhiana |
| 11:30 am - 01:30 pm | Advanced methods for the fortification of oils and fats | Dr. Manju Bala Principal Scientist, FGOP Division, ICAR- CIPHET, Ludhiana |
| 02:00 pm -04:00 pm | Technologies for valorization of de-oiled cakes | Dr. D. N. Yadav Principal Scientist, FGOP Division, ICAR- CIPHET, Ludhiana |
| 04:00 pm - 06:00 pm | Packaging consideration for fats and oilseeds | Dr. Ranjeet Singh Principal Scientist, ToT Division, ICAR- CIPHET, Ludhiana |

The session involved the detailed discussion on various aspects to analyse the quality of oils and major emphasis was given on the canola and ground nut oil. Information was imparted on what are the factors which can affect the quality of fat and oil products and at what extent. Further the session involved the discussion on the various advance techniques used for doing the fortification of fats and oils in order to enhance its properties. The details were given to the participants on the technologies available for valorization of de-oiled cakes. Further insights were given on the packaging considerations in order to prevent the rancidity and oxidation of fats and oils and to further extend the shelf life of the product. The session was ended up with the clarification of doubts of the participants.

Professor, Department of
Processing & Food
Engineering, PAU, Ludhiana

02:00 pm -04:00 pm

Process technologies for extraction
of essential oils and oleoresins.

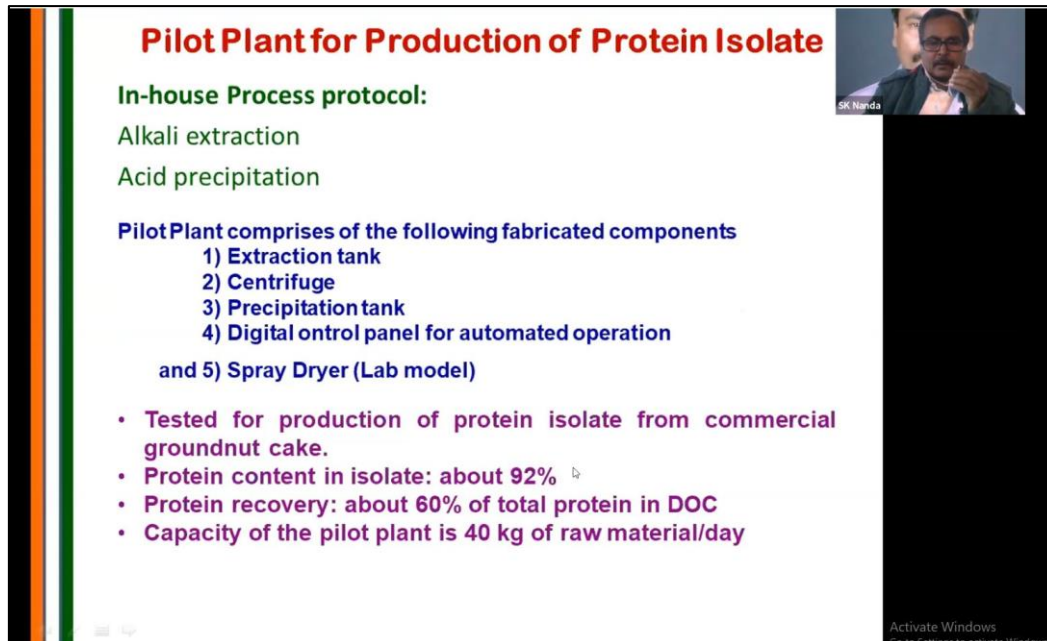
Dr. R. K. Vishwakarma
Principal Scientist, FGOP
Division, ICAR-CIPHET,
Ludhiana

04:00 pm -06:00 pm

Role of Oils and Fats in human
nutrition

Dr. Mridula D.
Principal Scientist & Head,
FGOP Division, ICAR-
CIPHET, Ludhiana

The session was started with the detailed discussion on the various technologies available in India for processing edible oil seeds. Further details were given on usage of various equipments and oil expellers to extract the oil from the seeds for instance a detailed lecture was given to discuss the production of protein isolate from ground nut cake. Further an interactive session was taken up to explain the technologies available to extract essential oils and oleoresins. The sessions were ended up with the detailed discussion on the nutritional requirement of fats and oil seeds in human diet.



Pilot Plant for Production of Protein Isolate

In-house Process protocol:
Alkali extraction
Acid precipitation

Pilot Plant comprises of the following fabricated components

- 1) Extraction tank
- 2) Centrifuge
- 3) Precipitation tank
- 4) Digital control panel for automated operation
- and 5) Spray Dryer (Lab model)

- Tested for production of protein isolate from commercial groundnut cake.
- Protein content in isolate: about 92%
- Protein recovery: about 60% of total protein in DOC
- Capacity of the pilot plant is 40 kg of raw material/day

SK Nanda

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Day 4: 05.01.2021 (Tuesday)

09:30 am -11:30 am

Modern Storage technologies for
oilseeds

Dr. Sandeep Mann
Principal Scientist, ToT
Division, ICAR-CIPHET,
Ludhiana

| | | |
|---------------------|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| 11:30 am - 01:30 pm | Advances in processing technologies of animal fats and their utilization | Dr. M. K. Chatli Dean, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana. |
| 02:00 pm -04:00 pm | Advances in process technologies for fat-rich dairy products | Dr. S. Siva Kumar Assistant Scientist – cum - Head, Department of Dairy Tech, GADVASU, Ludhiana |
| 04:00 pm - 06:00 pm | Food safety and standards for fats and oilseeds | Dr. Rahul K. Anurag Scientist, ASEC Division, ICAR-CIPHET, Ludhiana |

The session was started with a detailed discussion on the modern technologies used for storing oilseeds in order to prevent the deterioration and extend the shelf life of the product. Further details were given on the advances in processing technologies of animal fats & their utilisation. Further insights were given on the advancements incorporated in technologies for processing fat rich dairy products. The session was ended up with detailed discussion on the various food safety and standards associated with fats and oil seeds. The session was concluded with the doubt clearing session of participants.

Semi-rigid Packages


In view of the logistic and cost advantages, plastics in semi-rigid and flexible forms have become more popular.

Lined folding carton is made from suitable laminates like PET/PE, Aluminum foil laminate which gives required protection to the product and the outer duplex board carton is meant for extra protection to the primary pouch, graphic design and display.

Studies have indicated that the shelf life of double filtered groundnut oil and refined sunflower oil packed in foil based carton was better than that in PET bottles.

Nylon based bag-in-box with built-in tap system is also available for oil packaging in view of convenience of easy opening and reclosing system and cost effectiveness.

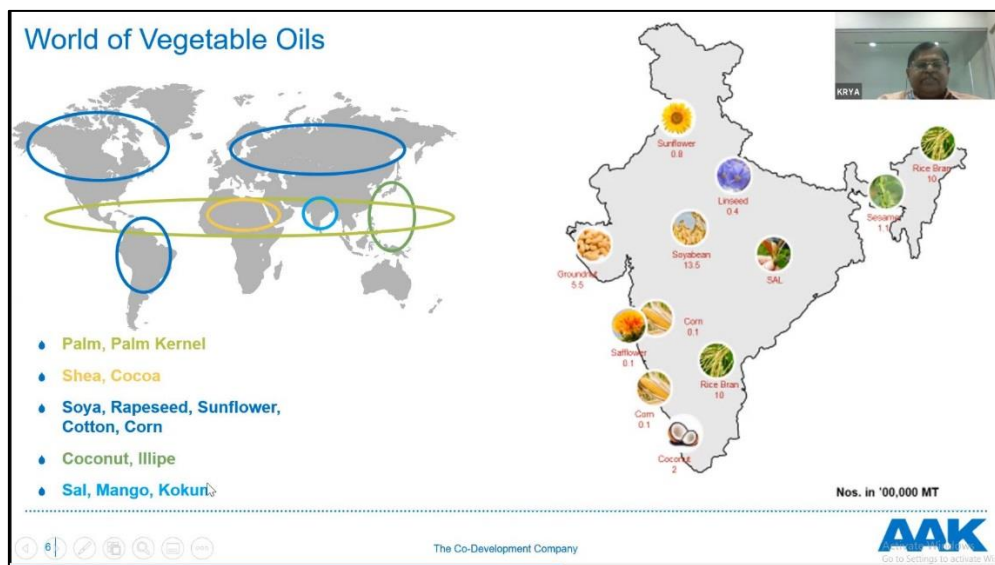
Tetra Pak cartons of varying capacity from 200 ml to 1 litre are also being used for packaging of oils.



Day 5: 06.01.2021 (Wednesday)

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|---------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| 09:30 am -10:30 am | Problem Management and enhancement of entrepreneurial competencies | Dr. Ramandeep Singh Professor, School of Business Studies, PAU, Ludhiana |
| 10:30 am - 11:30 am | Plant layout and maintenance for oil processing equipment | Dr. Sandeep P Dawange Scientist, ToT Division, ICAR-CIPHET, Ludhiana |
| 11:30 am - 01:30 pm | Innovations in production technologies for animal origin fats and oils and their processing. | Dr. A. K. Singh Principal Scientist, Dairy Technology Division, ICAR-NDRI, Karnal |

The session involves the detailed discussion on problem management and enhancement of entrepreneurial competencies. A detailed session was taken up on the what are the factors to be considered while designing a plant layout and what are the factors affecting the plant layout. Further insights were given on the maintenance requirements of oil processing equipment. The session was ended up with the detailed discussion on Innovations in production technologies for animal origin fats and oils and their processing. The session was concluded with clarifying the doubts of the participants.



State wise participant details for Fat & Oil Seed Processing Training Program:

| State | Number of Participants |
|------------------|------------------------|
| Meghalaya | 1 |
| Maharashtra | 2 |
| Tamil Nadu | 1 |
| Himachal Pradesh | 1 |
| Nagaland | 1 |

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|---------------|-----------|
| Odisha | 2 |
| Kerala | 2 |
| Chattisgarh | 2 |
| Tamil Nadu | 1 |
| Karnataka | 3 |
| Uttar Pradesh | 1 |
| Rajasthan | 2 |
| Sikkim | 1 |
| Punjab | 2 |
| Bihar | 1 |
| Total | 23 |
