MUGBERIA GANGADHAR MAHAVIDYALAYA

P.O.—BHUPATINAGAR, Dist.—PURBA MEDINIPUR, PIN.—721425, WEST BENGAL, INDIA
NAAC Re-Accredited B+Level Govt. aided College
CPE (Under UGC XII Plan) & NCTE Approved Institutions
DBT Star College Scheme Award Recipient
E-mail : mugberia_college@rediffmail.com // www.mugberiagangadharmahavidyalaya.ac.in

Report on

Students Seminar

2021-2022

Presented by- Students of M.voc 1st year

Venue- Dept. of Nutrition, Mugberia Gangadhar Mahavidyalaya

Organized by
Dept. of Nutrition
Mugberia Gangadhar Mahavidyalaya

Report prepared by Ayan Mondal, Assistant Professor, Dept. of Nutrition, Mugberia Gangadhar Mahavidyalaya

A seminar, or a panel discussion, is a focused and interactive educational event where a group of people with shared interests come together to discuss, learn, and exchange ideas

1. **Student name**- Banashri Manna
    - **Topic name**- Application of high pressure processingin in probiotic dairy product

      Guided by- Sucheta Sahoo

      Topic Details- High pressure PROCESSING (HPP)treatment is a novel technology, that involves subjecting to foods to high pressure of the order of 100-600 MPa.This technology has been proven successful for inactivation of numerous microorganisms and enzymes of food and increase the shelf life of foods. HPP tackles the product's quality and productive issues without the use of flavour altering additives or process. As a non thermal technology, so there is no change of nutritional and organoleptic attributes.

2. **Student name-** Bipasa Jana
    - **Topic name**- EFFECT OF OZONE TREATMENT IN RAW MILK PROCESSING
      Guided by- Sucheta Sahoo

      Topic Details- Ozone treatment is a cost effective ecofriendly food-processing technology. Ozone is a strong oxidizing agent and has a strong anti - microbial property. The aim of this study was to evaluate the effect of ozone exposure to the physiochemical and microbial activity. The ozone treatment for 0,10,20,30 min had no significant effect on physiochemical property of milk such as density ,protein ,fat ,but had significant effect on the electrical resistance ,total plate count and .Electrical resistance and malondialdehyde were increase ,while total plate count was decrease over time with the ozone exposure.

3. **Student name-** Madhumanti Pradhan
    - **Topic name**- ULTRASONIC PROCESSING FOR YOGURT MANUFACTURING
      Guided by- Sucheta Sahoo
      Topic Details- Fermentation is a process in which sugars are converted to lactic acid. A pH probe has been used to determine the acidity of yogurt during fermentation process. ultrasonic system can provide a fast, accurate, inexpensive, easy and non destructive method to access and monitor online the properties of food during process operation. This research shows the correlation between fermentation time and acoustic attenuation as well as acoustic velocity. It also shows the effect of temperature on the received signal attenuation and velocity for milk and yogurt.

4. **Student name-** Madhumita kar

- **Topic name**- ACTIVE PACKAGING OF CHEESE TO PROLONG SHELF LIFE
  Guided by- Sucheta Sahoo
  Topic Details- The traditional food packaging materials is continuing to evolve in response by changing market demands. Due to demanding of safe and healthy and high quality food and long shelf life , therefore new packaging technologies such as active packaging , tetra packaging are developed day by day. Active packaging materials are used to extend the shelf life or to improve the condition of packaged food. In this chapter the effectiveness of different antimicrobial packaging systems on the microbial quality decay kinetics during storage of Mozzarella cheese is evaluated. Lemon extract at 3 different concentrations, is used as active agent, in combination with brine and with a gel solution made of sodium alginate. Shelf life tests is run at 15°c to monitor the cell load of spoilage and dairy functional microorganism during storage. Under the tested conditions the result show an increased in shelf life of all active packaged mozzarela cheese . Allyl isothiocyanate antimicrobial sachet is applied in cottage cheese as an active packaging materials to preserve from yeast and mold growth and reduce the use of preservatives.

5. **Student name-** Mita Panda

- **Topic name**- Application of high hydrostatic pressure technology for acceleration of cheese ripening
  Guided by- Moinalisa Roy
  Topic Details- He application of high hydrostatic pressure (HHP) treatment has been proposed to reduce the ripening time of cheese via modifications in the enzymatic activities or the substrate reactivity. Investigations on the effect of HHP on cheese proteolysis have been undertaken with either encouraging results or little effect according to the treatment conditions and the type of cheese,

6. **Student name-** Moumita Maikap

- **Topic name**- Application of nano and microapplication to milk and dairy products
  Guided by- Moinalisa Roy

  Topic Details- Dairy industry are in a technologica and sociological revolution. In encapsulation process one substance are entering with another substance and prepare new component.in encapsulation process bioactive components bioavailability are increases. Microencapsulation is the process packing solid liquid gaseous meterial and n a miniature. Nano encapsulation in nanoscale particals are sorroundef particals in coating meterial.in encapsulation process milk are fortified and enrich.

7. Student name- Poushali Chowdhury

- **Topic name**- Use of liposome in dairy products
  Guided by- Moinalisa Roy
  Topic Details- Liposome has a vital application as potential carrier to deliver the food components and is considerably an innovative technology . The application of liposome is limited but researches indicating the potentials of liposomes for many improvements like – the targeted delivery of functional food ingredients , the synergistic delivery of ascorbic acid , improving the flavor of ripened cheese using accelerated methods and Tocopherols for promoting antioxidant activity in foods and the stabilization of minerals (such as iron) in milk has been performed. Liposomes and nano-liposomes have been employed to encapsulate the flavoring and nutritive agents in food industry . This method is also used to deliver antimicrobials . The application of lipase , protease, Nisin , flavor-containing liposome during processing in some products (like- cheese maturity) and liposome- encapsulation of micronutrients (ex- Iron) in milk are described below. As well as the advantages of liposome and it's wide width applications in many scientific fields are also describes shortly here.

8. Student name- Puja Bhunia

- **Topic name**- POTENTIAL BENEFITS OF NANOMATERIAL FUNCTIONAL DAIRY PRODUCTS
  Guided by- Moinalisa Roy
  Topic Details- Nanomaterial use have increase in dairy functional food in day by day,and its use in developed country and under developing country .Nanomaterial use in milk,cheese,yogurt milk product.Nanomaterial help to improve the product quality to enhance the shelf life of the product .Nanomaterial is use in packaging ,food processing, sensor,food additives .and safety ,detection of adultration in food product .its help to inhabit the deficiencies diseases. Potential benefits of having Nanomaterial its describe.

9. Student name- Rakhi Rani Guria

- **Topic name**- How To Use Feedlot Technology In Change The Fatty Acid Profile Of Dairy Product
  Guided by- Monalisa Roy
  Topic Details- Consumption of milk and butter has greately increased the incidence of coronary heart disease and this is due to the effect of hypercholesterolemic on dairy fat. Fat-modified dairy products are an innovation technology in which secured unsaturated lipids are fed to ruminants by resulting in milk and tissue lipids with decreased saturated fatty acids. We examined the impact of these novel dairy fats on plasma lipids in a human dietary trial. Thirty-three women and men take part in an 8-wk incidental crossover trial cormparing fat-modified dairy products. The trial

consisted of a 2-wk low-fat baseline period followed by two 3-wk intervention phases. During the trial time, the fat-modified products resulted in a significant 0.28-mrnolll(4.3%) lowering of total cholesterol . Most of this decrease was in LDL cholesterol whereas HDL cholesterol and triacylglycerols endure approximately unchanged. This alteration in the fatty acid profile of dairy products, if applied to populations typical of developed Western countries, represents a potential strategy to lower the risk of coronary heart disease without any appreciable change in customary eating patterns.

10. Student name- Rima giri

- **Topic name**- Advances in antioxidant active packaging for dairy products
  Guided by- Monalisa Roy

  Topic Details- Lipid are the main compound of oxidative reactions. Oxygen and unsaturated fatty acid both are main components of lipid oxidation. Foot quality loss due to oxidation which lead to self life reduction and product loss. Milk is highly fatty, so there is chance to oxidation. Currently, a novel antioxidant active packaging technology is involved in incorporation of antioxidant agent in the package to improve the stability of food products. Antioxidant used to minimize lipid oxidation of milk product. Multi layer films formed with LDPE, HDPE and ethylene vinyl alcohol containing antioxidants such as BHA(1.5%), BHT(1.5%) and Alpha Tocopherol (4%).These films gave good light barrier and helpful for milk powder. In the package Antioxidant is slow release to maintain the amount of migration. Thus rate of oxidation is minimize in food.

11. Student name- Sagarika Maita

- **Topic name**- RAPID METHODS OF MICROBIAL DETECTION IN DAIRY PRODUCTS
  Guided by- Monalisa roy

  Topic Details- Dairy products are monitored for microbial spoilage to ensure their quality and safety across the supply chain under the recent U.S.Food Safety Modernization Act, including environmental monitoring for pathogens and allergens. Recently, several methods have been developed for rapid monitoring of spoilage microbes and pathogens in dairy products throughout processing, storage and distribution. These new techniques off a faster,more reliable and comprehensive understanding of the microbial status of food products. These novel techniques are often less costly than traditional microbial detection and provide quick analytical results for perishable food, often in the form of in package sensors. In turn, this may open new markets for these products and reduce overhead costs. Other applications have provided quick data on milk quality to help improve quality practices as processing. In this work, a few rapid microbial investigation methods that may replace conventional product quality testing techniques in the dairy industry.

12. Student name- Sanjib Das

- **Topic name**- Advancement of Osmodehydro-freezing in functional ice-cream
  Guided by- Sruti Mandal

  Topic Details- In functional ice cream making osmodehydrofreezing is an important method. Osmodehydrofreezing is a joint preservation method. This process gone through two important steps such as osmotic dehydration & freezing. In osmotic dehydration vegetables or fruits are gone through special treatment and that's result fruits or vegetable quality and stability is enhanced and also decrease the freezing time. This is depending on osmotic solution, temperature, time, size and shape of the sample. Water activity is also reduced by dehydration process through mass transfer then freezing process is apply that's result storage life is increase (6 month-1 year). Totally this process enhanced product stability, quality, good texture, bright colour etc. If use carotene in ice-cream as a functional ingredients it will be a nutritious ice-cream.

13. Student name- Sathi Lohar

- **Topic name**- Application Of Novel Method to Detect Adulteration of Ghee or Milk Fat
  Guided by- Monalisa Roy
  Topic Details- Food adulteration is a worldwide problem and developing countries are at higher risk correlated with lack of observing, policies & insufficiency of infrastructure for scrutinizing the same. Ghee is a broadly consumed as dairy commodities in India that made from cow milk, mentioned in ayurvedic texts as an component of many formulations as well. Ghee is almost three to four times expensive than the other edible fats and oils.Its restricted supply attracts the unethical manufactures to adulterate it with inexpensive alternatives in Indian subcontinent. Detection of ghee adulterated with vegetable oils & fats and animal body fats is a key concern at basic level during processing and marketing. This chapter presents a ingoing announcement of common adulteration of ghee as well as various methods to detect the adulterants both qualitatively and quantitatively. In reported techniques are – Apparent Solidification Time Test, Differential Scanning Calorimetry and Differential Thermal Analysis ,Crystallization Time Test ,Critical Temperature of Dissolution, Fractionation of milk fat, Iodine Value, Saponification Value, Opacity test are considered in this chapter.

14. Student name- Sayan Das

- **Topic name**- APPLICATION OF ANTIFREEZE PROTEIN IN MILK AND MILK PRODUCT
  Guided by- Sruti Mandal
  Topic Details- The division of live things in the Earth is affected by many things like climate, soil, water, population growth, geographical condition, technological development, climate change etc. Among all the factors mentioned above climate is the most important factor and ice is another important factor to influence the distribution of the live creatures in chilled region. Some microbes, animal and plant are synthesized antifreeze protein in their body to protect them form the outcome

of ice. Antifreeze protein are a class of polypeptides. That produce by some particular animals, plant and microorganism, that permit them to survive at the freezing temperature of water (<0°c). This antifreeze protein also known as ice-structuring proteins. Antifreeze protein inhibit the growth of large ice crystals. The main function of ice-structuring proteins is to cut down the freezing point except influenced the melting point of the food. The use of antifreeze protein in frozen milk and ice-cream products as additive is limited. Ice-structuring proteins can be physically added to food by mixing, dipping, injection. The demand of ice-cream production is increasing day by day. The use of ice-structuring protein is to preventing the growth of ice crystals that improve the flavour and texture of ice cream. Ice crystal are usually happened due to temperature fluctuation. During storage small ice crystals are melt and form large ice crystals. Ice-cream can be freeze at a temperature of -18°c to -30°c without making any large ice crystals using antifreeze protein. We can use antifreeze protein during chilling of milk. Antifreeze protein is new in food, many people are more likely to have allergies but past history of antifreeze protein proves that these proteins are not toxic, it does not cause any adverse effect on the body. Use of antifreeze protein in medical, industrial and commercial fields is significant. Purification and isolation, heat stability, price, chemical synthesis affect the use of antifreeze protein in foods.

-

15. Student name- Shibani Maity

- **Topic name**- ADVANCEMENT OF NEMATODES CONTROL PRACTICE IN INDIAN DAIRY INDUSTRY
  Guided by- Sruti Mandal

  Topic Details- Nematodes are a diverse group of worm - like animals. They live virtually in every environment. They are the most numerous multicellular and parasitic animals on earth. Nematodes also can be transmitted from animals to humans. egg carried in excrement from roaches and dung beetles ingested by cattle, sheep and fogs contamination. They reproduce sexually .Parasitic nematodes are readily spread by any physical means that can move soil particles about - equipment, tools, shoes, birds, and insects infect animals: entry can be through skin, ingestion of eggs in food or through bites by an infected vector. The nematodes have six stages first egg development next larval (l1-l2-l3-l4) l4 is final molt. Adult worm size: male – 2-5 mm, female- 8-13mm.nematodes three types – free living nematodes, predamentory, parasitic. Anthelmintics drugs for nematodes control-albendazole, mebendazole, ivermectin, abamectin. it is important to remember that most anthelmintic drugs cannot be used in those animals while they are producing milk foe human consumption. It includes grazing, biological control, nutritional supplement. Date and whether or not claves graze with their dam. It is important to remember that most anthelmintic drugs cannot be used in those animals while they are producing milk for human consumption gets risk are weaned claves on pasture grazed by cattle in the previous 12 months. Faecal egg count (FEC) testing. Effect of nematode on animals-Infertility, abortion, irregular heat periods. Calving season is longer. Economic losses caused by cattle parasites in estimated on an annual basis. Animal parasitic nematodes are considered one of the most economically important pathogens responsible for enormous economic losses for the livestock industry worldwide. Animal parasitic nematodes are considered one of the most economically important pathogens responsible for enormous economic losses for the livestock industry worldwide.

16. Student name- Sourav Panda

- **Topic name**- Application of induction heating in dairy industry
  Guided by- Sruti Mandal

  Topic Details- Induction heating is a non contact heating process. High frequency electricity to heat that could be connective of conductive material. This process liquid food can be not destroyed and bad effect of processing section. It is called good process. Many mechanism to be involve of processing section. The manufacturing processing to way electricity support. One is eddy current is to apply and typical induction is to provided to manufacture. That could be improve the liquid food quality. This technology environmentally friendly. This process is so be first of the heating material. More recently, focus on lean manufacturing techniques and emphasis on improve quality control have lead to rediscoverey.That could be control of processing section. Simply to be apply in our homemade cooking system.

17. Student name- Suylekha Dhara

- **Topic name**- Application of "Supercooling technology" in dairy food products to enhance its preservation
  Guided by- Sruti Mandal
  Topic Details- Supercoolingtechnology is a process where the temperature of a gas or liquid is below its freezing point and does not from crystal . Now a dayssupercooling products are in demand rather then frozen products, because It is a natural process and it doesn't need of any preservatives. It increase the taste and textureof frozen food and also reduce wastage rate of food products.

18. Student name- Suraj Das

- **Topic name-** USE OF THERMOSONICATION TECHNIQUE TO REDUCE MICROORGANISM OF MILK & MILK PRODUCTS
  Guided by- Sruti Mandal

  Topic Details- Milk processors are seeking techniques to enhance the shelf existence of fluid milk. Conventional pasteurization destroys all pathogens and lots of spoilage microorganisms, will increase milk shelf existence up to 14 to 21 days while bottled and saved below refrigerated situations however severe heating of milk can cause Maillard or caramelization reactions, off - flavors and lack of nutrients. Thus, it's far critical that any proposed remedy does now no longer compromise the sensory high-satisfactory and dietary residences of milk. Thermosonication is a unique and exact opportunity method to update the traditional heat treatment process. It will increase the shelf existence of the product, making it secure for human intake without changing its dietary composition and organolepticattributes.

19. Student name- Tiyasa Roy

- **Topic name**- SUPERCRITICAL FLUID EXTRACTION APPLICATION IN DAIRY FOOD INDUSTRY
  Guided by- Sruti Mandal

Topic Details- In the present scenario of growing population and environmental concerns, consumers are having widely preferences towards healthier, minimally processed and long shelf stable foods which in turn paved the way to develop new functional dairy products. Numerous and wider range of possible methods with better nutritional emphasis and enhanced functionality of dairy foods were emerging. Super Critical Fluid Extraction (SCFE) is one amongst the processes which is currently becoming popular in modify different food products to produce new prodct. This SCFE achieve prominence as an alternative to green technology in the food processing industry. It is a fluid phase extraction processing method which act in between a gas and liquid and induces solubilization of solutes in a base food material. In this method supercritical fluids most commonly CO_2 is used as a solvent to separate one selective component from the base food material. SCFE can be varied for different foods upon altering the two factors i.e., pressure and temperature or both. The products obtained in milk and dairy processing with use of SCFE had a higher shelf life and acceptable sensorial properties with minimal loss of quality ,nutrient attributes. some studies related to the potential of SCFE and its microbial inactivation, milk fat analysis, milk fat fractionation and fat solubility, extraction of cholesterol, vitamins, flavours, fat and applications of SCFE technology in dairy products and by-products more specifically in butter, cheese, whey cream .

Mugberia Gangadhar Mahavidyalaya ESTD.-1964 Purba Medinipur Bhupatinagar

Principal 22.12.2023
Mugberia Gangadhar Mahavidyalaya