



Annual Report

2021-2022



Institute of Food Science and Technology (IFST)
Bangladesh Council of Scientific & Industrial Research (BCSIR)
Dr. Qudrat-i-khuda Road, Dhanmondi, Dhaka-1205, Bangladesh

Annual Report

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Energy Producing Foods

Body Building & Repairing Foods

Immunity Boosting Foods

Balanced Diet

Institute of Food Science and Technology (IFST)
Bangladesh Council of Scientific & Industrial Research (BCSIR)
Dr. Qudrat-i-khuda Road, Dhanmondi, Dhaka-1205, Bangladesh



IFST Bulding

MESSAGE FROM THE CHAIRMAN OF BCSIR



It is my great pleasure to write something for the annual report of the Institute of Food Science and Technology (IFST) in the fiscal year 2021-2022. IFST has come forward to meet in response to the challenges of the Fourth Industrial Revolution (4IR) in order to raise public awareness of food safety. In this regard, this institute aims to accomplish research and development (R & D) activities, provide analytical service and expand activities of sustainable technologies to the rural areas. In parallel, this institute is focusing on implementing high class research activities and hiring qualified fellows in order to meet the upcoming challenges of 4IR causing for safe foods. This annual report is a reflection of true resilience and determination in striving for excellence to connect all the research and developmental acquirements for the researchers, scientists and food business entrepreneurs to fulfill the sustainable development goals in the area of food safety and security with a depiction of the entire sedulous endeavors with industrial purpose in recent years.

IFST is moving forward to be the prime and largest contributory national research and developmental organization in the field of foods, science and technology. In line with the digital Bangladesh program, the major role of the institute is not only to ensure safe food through quality analysis, but also to produce nutritious and value added food using sustainable technologies to facilitate public and private entrepreneurs. Moreover, IFST comprises skilled, enthusiastic and devoted scientists who supervise MSc and PhD students of several universities across the country. Their tenacious attitude will undoubtedly help the country achieve the Sustainable Development Goals (SDGs) by 2030 and contribute to its entry into the developed world by 2041.

I would like to express my sincere gratitude to the Minister, Ministry of Science and Technology, Architect Yeafesh Osman, for his continuous support to run the BCSIR smoothly. My special thanks to Mr. Ziaul Hasan ndc, Senior Secretary, Ministry of Science and Technology for his support in all regards.

I would like to congratulate all the scientists, officers and staffs for their tremendous efforts to research and development activities. Their synergistic efforts and conscious inventiveness are revealed through the institute's achievements. At the end, I would like to thank the director of IFST, BCSIR for his management capacity to run the institute smoothly.

Joy Bangla, Joy Bangabandhu
May Bangladesh Live Long.

A handwritten signature in black ink, appearing to be 'Aftab Ali Shaikh', written in a cursive style with a long horizontal line extending to the right.

(Professor Dr. Md. Aftab Ali Shaikh)
Chairman
BCSIR



MESSAGE FROM THE DIRECTOR

I am extremely grateful for the opportunity to present the annual report of the Institute of Food Science and Technology (IFST) for 2021-2022. In IFST, the scientists make contributions to the comprehensive research and development (R & D) activities, scientific research article publications, developing processes and patent rights along with different food and food safety related training, seminars, conferences, industrial visits and workshops for stakeholders.

Upholding the aspiration of Bangabandhu to build "Sonar Bangla", IFST is always striving hard to ensure quality research to meet national and global the challenges, focusing on accomplishment of its mission through the creation and dissemination of new technology through its research and development (R&D) in the food science sector. It is one of the leading institutes of BCSIR. Scientists work hard to generate new knowledge in the area of food sciences such as food chemistry, food microbiology, food safety, food toxicology etc. BCSIR has been recruiting young scientists who are competent with updated knowledge & techniques in food science. IFST offers university students with laboratory support in the completion of their theses. More laboratory facilities with new and robust scientific equipments are being incorporated in an endeavor to facilitate scientists with more opportunities to research. Moreover, IFST supports Bangladesh Customs, BSTI, BFSA with consultancy, analytical support and training in the arena of food science & technology. I am confident that this annual report will provide comprehensive scenario of the achievements and ongoing activities of IFST.

I would like to convey my thanks to the editorial committee, scientists and staff of IFST for their triumph in publishing this annual report. I believe they will work harder in the upcoming days to serve our great nation and thus play an important role in fulfilling Sustainable Development Goals by 2030. I extend my deepest appreciation and indebtedness to the chairman of BCSIR for his incessant encouragement and tremendous support for all the activities of this well-known institute.

(Dr. Md. Abdus Satter Miah)
Director (Additional-charge)
IFST, BCSIR, Dhaka

MESSAGE FROM THE CONVENER



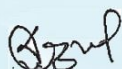
I am pleased to announce that the Institute of Food Science and Technology (IFST) is going to publish the annual report for the years 2021-2022. The report exposes the annual research and development (R&D) activities, research papers, processes, patents, rendering services to industries and entrepreneurs, and overall innovations of the institute. This report also displays information about food and food safety-related training, conferences, seminars, and workshops for stakeholders. I believe that this report will be valuable and helpful for researchers, entrepreneurs, and other personnel in the associated area.

IFST is the largest research institute of BCSIR to conduct R&D for food and food-related product development. The main tasks of this institute are to ensure safe food through quality analysis and work with public and private entrepreneurs to industrialize the food business. The trained scientists and state-of-the-art laboratories of IFST can also analyze adulterated food, ensuring proper service in this regard and contributing to the government's vision.

I would like to express my heartfelt appreciation to Professor Dr. Aftab Ali Shaikh, chairman of BCSIR, and Dr. Md. Abdus Satter Miah, Director-In-Charge, IFST, for their unwavering support and inspiration for the research and development activities of this institute. My special thanks and appreciation go to all of the editorial committee members for their unwavering support and teamwork in collaborating and editing this report.

Finally, I would like to express my heartfelt gratitude to all of the scientists, technicians, officers, and personnel at IFST, BCSIR for their continuous support and hard work in preparing this report.

Joy Bangla, Joy Bangabandhu
May Bangladesh Live Long.



Convener
Dr. Mohammad Nazrul Islam Bhuiyan
Annual Report Preparation Committee,
IFST, BCSIR, Dhaka-1205.



MESSAGE FROM THE MEMBER SECRETARY

Healthy foods mean healthy living. Therefore, it is very important that certain level of health standard is maintained so that safe and reliable food consumption is ensured for the general people. The projection for the report highlights over all research and development achievements of the institute of food science and technology (IFST), BCSIR and also provides technical supports to the entrepreneurs and PhD, MPhil, MSc Students of different universities for the sustainable Development Goals (SDGs), introduce the 4IR facilities and contribute to the transformation from middle income country into the developed country.

It is my great privilege to be the member secretary of the annual report publication committee of the year 2021-2022 of the IFST, BCSIR, Dhaka. I acknowledged my deep gratitude to Professor Dr. Md. Aftab Ali Shaikh, Chairman of BCSIR and Dr. Md. Abdus Satter Miah, Director (Additional Charge), IFST for their encouragement and guidance in research projects, valuable advice and support for the preparation of this report.

I would like to express my heartfelt thanks to the convener and member of the committee for their hard works, constant support in compiling and editing the script.

Finally, i would like to thanks to all the scientists, technicians, officer and staffs of IFST, BCSIR for their full co-operations while preparing this report.

I hope, our collaborative and conscious inventiveness will reflect in the institute's achievements.

A handwritten signature in black ink, appearing to be 'Kanika Mitra'.

Dr. Kanika Mitra
Member Secretary
Annual Report Preparation Committee,
IFST, BCSIR, Dhaka

Editorial Committee



Dr. Mohammad Nazrul Islam Bhuiyan
Principal Scientific Officer
Convener



Joynal Abedin
Senior Scientific Officer
Member



Nourin Tarannum
Scientific Officer
Member



Md. Hasib Pathan
Scientific Officer
Member



Dr. Kanika Mitra
Principal Scientific Officer
Member Secretary

TEAM IFST



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Preface

The Institute of Food Science and Technology (IFST) is the largest national research and development (R&D) organization, which conducts research and development activities in the field of food science and technology. The R & D territory covers all types of products from plant as well as animal origin. This institute plays an active role in transferring technologies developed by our scientists to the commercial entrepreneurs of our country. The outcome of the research work is disseminated by means of seminars, conferences, lectures, publications and leasing out technologies. In addition to generation of new technology, IFST has been rendering technical assistance, analytical and testing services to food industries in the country. It has been helping the fish export sector by extending testing and analytical support to sea food industries on a regular basis.

To expand the research scope of the institute, to cope with changed circumstances, some modern and sophisticated equipment like LC-MS/MS, HPLC, GC, AAS, FTIR, GC-MS/MS, SEM, Bomb Calorimeter, Vacuum Packaging Machine, RT-PCR, BSL-3, Biolog Microbial Identification System, Trinocular Microscope, Texture Analyzer etc. have been installed in this institute.

In the recent period different kits and methods have been developed to detect adulteration (eg. formalin, iodine, urea, hydrose, carbide etc.) in food & food products. The institute has seven research divisions & seventeen research sections. The Director is the head of the institute. To assist the director in various activities of the institute there exists an administrative and an accounts wing. Furthermore, there are seventeen (17) committees to help the administration for smooth functioning of the activities occurring in the institute.

Vision and Mission of IFST

Vision

To accomplish the status of centre of excellence in the field of Food Science and Technology by the year 2041

Mission

To develop and carry out scientific & technical researches for ensuring nutritive and safe food for the mass population of Bangladesh as well as contributing in flourishing socioeconomic status by promoting and leasing out scientific technologies to the entrepreneurs and food industries

SWOT Analysis for IFST

STRENGTH

1. Highly qualified and educated researchers
2. A group of dedicated, enthusiastic and energetic young scientists
3. The laboratories have some sophisticated instruments
4. Seven divisions with sixteen sections for different research field in food science

THREATS

1. Lack of interactive programs to encourage the scientists & officials
2. Limited opportunities to knowledge sharing
3. Lack of opportunities in participating international training/ seminars/ workshops
4. Lack of collaboration with international scientific society

OPPORTUNITIES

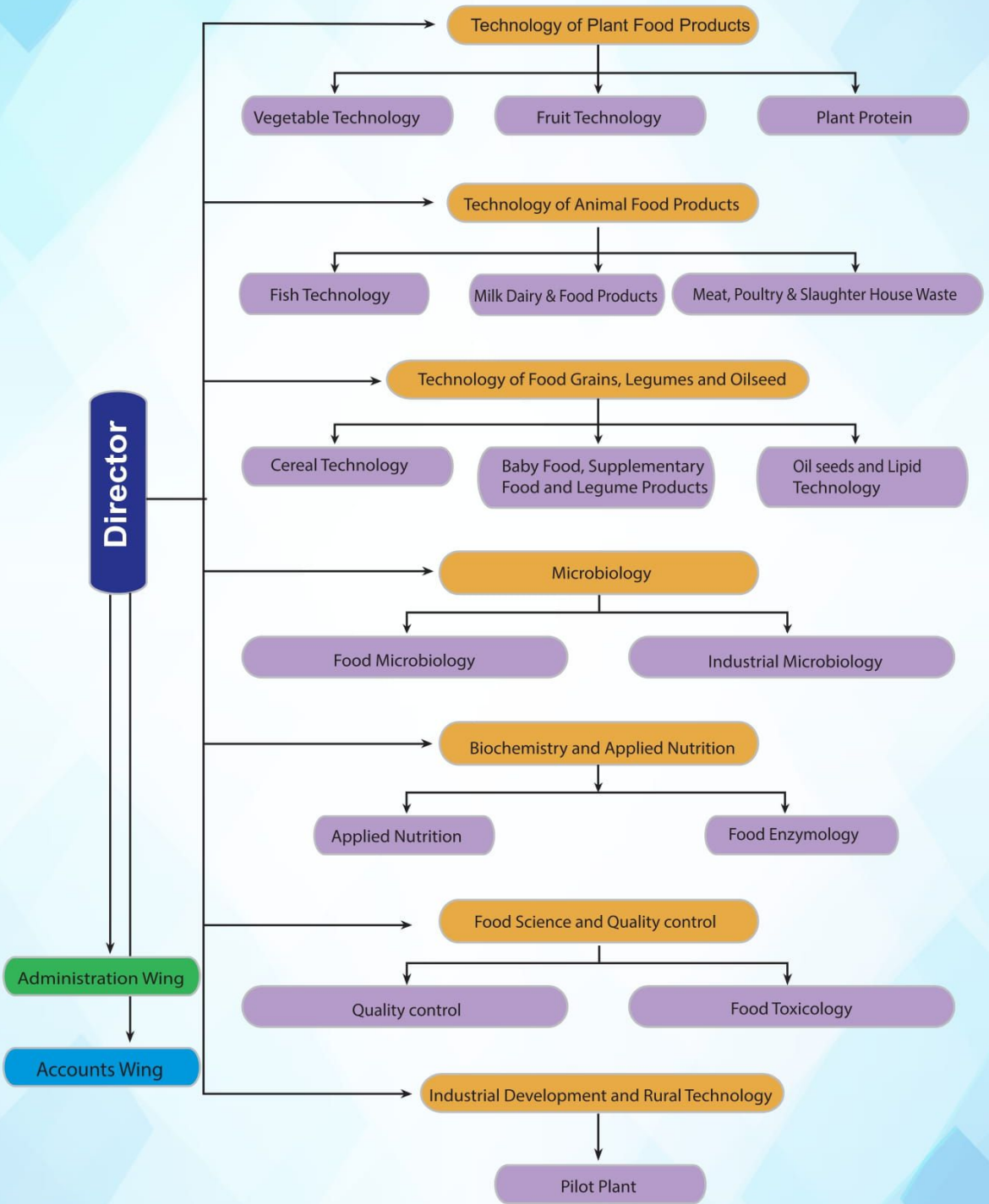
1. Development of nutritious and safe food by R&D projects
2. Fast, user friendly and worthy analytical test facilities
3. Training programs for various organizations
4. Interpretation on food processing and quality control

WEAKNESS

1. Insufficient number of scientists and technicians
2. Limited number of skilled manpower and development program
3. Lack of regular upgradation of laboratories and maintenance with modern equipments
4. Insufficient space for laboratories



Diagrammatic Arrangement of IFST



Responsible Personnel of Divisions & Sections

Division	Division-in-charge	Research Section	Section-in-charge
Technology of Plant Food Products	Dr. Md. Abdus Satter Miah	1. Vegetable Technology 2. Fruit Technology 3. Plant Protein	1. Dr. Sultana Anjuman Ara Khanom 2. Dr. Sharmin Jahan 3. Dr. Md. Abdus Satter Miah
Technology of Animal Food Products	Abu Tareq Mohammad Abdullah	1. Fish Technology 2. Meat, Poultry & Slaughter House Waste 3. Milk Dairy & Food Products	1. Mohajira Begum 2. Abu Tareq Mohammad Abdullah 3. Dr. G M Anwarul Hasan
Technology of Food Grains, Legumes and Oil Seed	Dr. Md. Abdus Satter Miah	1. Cereal Technology 2. Baby Food, Supplementary Food and Legume Products 3. Oil seeds and Lipid Technology	1. Dr. Md. Abdus Satter Miah 2. Dr. Kanika Mitra 3. Md. Alamgir Kabir
Microbiology Division	Dr. Mohammad Nazrul Islam Bhuiyan	1. Industrial Microbiology 2. Food Microbiology	1. Dr. Mohammad Nazrul Islam Bhuiyan 2. Meher Nigad Nipa
Biochemistry and Applied Nutrition	Salma Ahmed	1. Applied Nutrition 2. Food Enzymology	1. Salma Ahmed 2. Dr. Md. Mahbubar Rahman
Food Science and Quality Control	Dr. Tasnim Farzana	1. Quality control 2. Food Toxicology	1. Dr. Tasnim Farzana 2. Mohammad Tariquul Hassan
Pilot Plant	Dr. Sharmin Jahan	1. Pilot Plant	1. Dr. Sharmin Jahan

Allocation for IFST

Head	2021-2022 (Allocation)	2021-2022 (Total Expenditure)
Pay & Allowance	3,59,00,000.00	3,48,04,912.00
Research	1,82,88,000.00	1,79,22,790.00
Repair	6,20,000.00	5,97,760.00

Total Income of IFST in 2021-2022

Analysis and service rendered 5, 91,10,867.00

Related Activities of IFST

1. Technical Consultation and Guidance

Technical consultation and guidance are provided based on requests from private food entrepreneurs. Practical guidance is provided to solve the technical problems on request from others.

2. Sponsored Project

Analysis, testing and research for new product development of food conducted on request from private food entrepreneurs and analytical reports of these works are issued to them.

3. Technical Meeting and Knowledge dissemination

In order to disseminate the outcome of research work and technical information and to solve different problems regarding the research works monthly meeting and seminars were organized.

4. Technical Training

Technical trainings are provided to the private food entrepreneurs upon their requests.

5. Guiding Students

Every year, a large number of B.Sc, M. Sc, M. Phil and Ph. D students and research fellows are mentored for their research work.

6. National Humanitarian Service

Scientists of IFST are involved in the preparation and distribution of oral saline during national emergency period like flood and other natural calamities.

7. Support to World Food Programme (WFP)

IFST provides test report through analyzing the raw materials of biscuit preparation and fortified high energy biscuits prepared for school going children.

8. Other Services

Scientists assist and share expertise in the preparation of different Food Standards of Bangladesh Standard and Testing Institute (BSTI).

9. Special Activities

Scientists were involved in hand sanitizer preparation, testing and distribution during this Covid-19 pandemic situation.

The image features a central white, rounded rectangular bubble containing the text "Research and Development Activities (R&D)". This bubble is surrounded by several overlapping, semi-transparent shapes in various colors including pink, orange, red, purple, green, and teal. The background is a light blue gradient with abstract, overlapping geometric shapes and patterns of small yellow and blue dots. The overall design is modern and dynamic.

**Research and
Development
Activities (R&D)**

Annual Report 2021-2022



A. Technology of Plant Food Products Division

1. Vegetable Technology Research Section

I. Title: Development of Value added food products from vegetables (e.g. carrot, tomato, cauliflower, cabbage etc.)

Introduction:

All over the world, value added vegetable products have contributed to increase trade value of fresh vegetables throughout the year. Since Bangladesh is a tropical country it is known to have very fertile soil. Therefore, production of vegetable is massive every year. However, one-third of the produced amount of these vegetables gets wasted due to lack of proper transportation, processing and preservation. In our country a big number of people are getting engaged day by day. As a result, more people are unable to intake vegetables with right amount of nutrition due to time constraints. Also this project will help to establish small and medium scale food industries creating new employments & entrepreneurs. Lots of people will economically empower. Thus, it will play a vital role in poverty reduction and will also help to save foreign currency.

Taking this factor into consideration, this project has been designed in order to ensure the availability of vegetable in process form that can be consumed instantly.

This problem can be solved if we are able to develop value-added vegetable products

- ❖ Anjumanara Khatun, PSO
- ❖ Dr. Sultana Anjuman Ara Khanom, CSO (PRL)
- ❖ Meher Nigad Nipa, SSO
- ❖ Rajib Banik, SSO
- ❖ Shammi Akhter, SSO
- ❖ Md. Hasib Pathan, SO

Objectives:

- i) To develop value added vegetable products.
- ii) To minimize the amount of post harvest lost of vegetables.
- iii) To promote the usage of vegetables.

Progress achieved:

Two value added food products namely 'Instant Tomato Soup Powder' and 'Tomato Leather' have been developed. Besides this, the nutritional, physical and microbiological study of other vegetable-based food products is going on.

Achievement:

02 Research Paper has been published in international journal.

Technology of Plant Food Products Division

2. Fruit Technology Research Section.

I. Title: Development of import substitute value added fruit product with assistance of “Advanced processing technologies”

- ❖ *Dr. Sharmin Jahan, SSO (PL)*
- ❖ *Dr. Barun Kanti Saha, CSO*
- ❖ *Md. Motalab, SSO*
- ❖ *Bushra Mumtaz, SSO*
- ❖ *Dr. Sadia Afrin, SO*

Introduction:

Recent trend relies on consumers trust in their food sources and transparency in the products. The food that peoples consumed should be “real,” “authentic” and “legitimate”. In our food supply fruit and fruit products always be the key components. Four factors namely color, texture, flavor, and nutrient content are the key components for quality fruit products. The goal of our current research is to maximize all four of them by applying advanced technologies for import substitute value added fruit product development.

Through advanced processing technologies, we have the potential for improved nutrient content, better color and flavor, and the ability to engineer the texture. Infrared Technology, high pressure processing, electric controlled dehydrator, pulsed electric fields, and microwaves, these technologies jointly denoted as “advanced processing technologies” which aren’t commercialized in Bangladesh yet. Interest in advanced technologies is growing, as the processors work to meet the demands of consumers who want high-quality, natural foods without uncertain ingredients. Consequently, this research outcome is to develop import substitute value added products from locally available fruits in Bangladesh in the form of dried fruits/ fruit bar/ fruit butter as a nutritious and healthy snack

Objectives:

- i) To develop export-import oriented fruit product in the form of dried fruits/ fruit bar/ fruit butter
- ii) To maximize all four factors (color, texture, flavor, and nutrient content) by applying “advanced technologies”
- iii) To develop cost effective industrial technologies
- iv) To reduce dependency on imported food products
- v) To minimize post-harvest losses

Progress achieved:

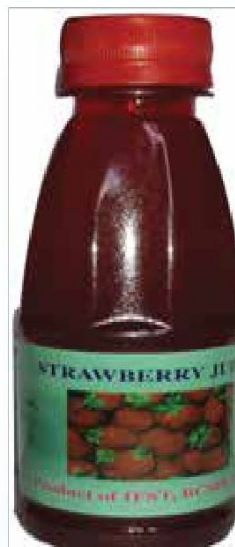
One Product namely "Dried Mango Slices" is ready for submission additionally, formulation of "Pineapple Fruit bar" and self-life study was completed. Last but not least optimization of "Mixed Fruit butter" is in process.



Dried Mango Slices



Pineapple Fruit bar



Strawberry Juice-Drink

Technology of Plant Food Products Division

3. Plant Protein Research Section

I. Title: Formulation of Nutraceutical Products for Diarrheal Patient.

- ❖ Md. Mamunur Rashid, RC
- ❖ Maesha Musarrat, SO
- ❖ Ashish Kumar Sarker, CSO
(Director in charge, BTRI)

Introduction :

Diarrhea is one of the most important causes of children mortality around the world. Poverty, malnutrition, low health status and unfavorable living conditions are also risk factors. The rate of this disease in developed and developing countries is in the range of 2 to 12 cases per person per year. It is estimated that diarrheal diseases in developing countries account for more than three million deaths among children every year and it will lead to malnutrition among children who have been treated. Diarrhea, among children with malnutrition, has more severe effects and the rate of mortality among them is eight to nine times higher than that of children with normal nutritional status. In this study a DF enriched formulation was developed that can meet the nutritional demand and provide adequate potassium and zinc during diarrheal episode. Similarly DF can absorb the intestinal extra water and reduce the frequent diarrheal episode.

Objectives :

- i) To develop a formulation to fulfill the nutritional requirement during diarrheal episode.
- ii) To reduce the frequent loose motion supplied with DF and marmelose supplementation.
- iii) To maintain the potassium, sodium and zinc level during diarrhea.

Progress achieved:

- ◆ Preliminary assessment of the potentiality of this developed formulation was done.
- ◆ The raw materials have been collected and nutritional composition analysis was done.
- ◆ The developed product has sent to BTRI lab to observe the impact on rat about nutritional demand management.

One paper was published in BJSIR.

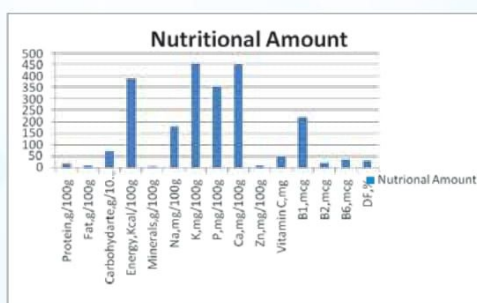


Fig: Nutritional composition of developed product

Technology of Plant Food Products Division

3. Plant Protein Research Section

II. Title: Development of Low Glycemic Index (GI) food products (Noodles, Pasta, Spaghetti) using legume and rice by-products

Introduction:

Low Glycemic Index (GI) food products cause a slow, steady rise in blood sugar levels followed by a slow, steady decline. These food products can improve blood sugar control and insulin sensitivity in people with type II diabetes. In present days, noodles, pasta, spaghetti are popular food items. But very few of them have low glycemic effect. As rice and legumes are the staple foods of Bangladesh, rice and legume by-products are easily available in local markets. Thus, development of Low Glycemic Index (GI) food products (Noodles, Pasta, Spaghetti) using rice and legume by products may create a variety in the diet of diabetic patients.

❖ *Maesha Musarrat, SO (PL)*
❖ *Md. Mamunur Rashid, RC*
❖ *Ashish Kumar Sarker, CSO*
(Director in charge, BTRJ)

Objectives:

- i) To develop Low Glycemic Index food products (Noodles, Pasta, Spaghetti) using legume and cereal by-products.
- ii) To create a variety in the diet of diabetic patients.
- iii) To develop high protein low GI food products.

Progress achieved:

- ◆ Preliminary assessment of the potential of this project was done.
- ◆ The raw materials have been collected and analyzed.
- ◆ The low GI food product was developed in form of noodles and nutritional composition and microbiological tests were performed.
- ◆ One paper has been submitted to a peer reviewed journal.

B. Technology of Animal Food Products Division

1. Fish Technology Research Section

I. Title : Scaled-up bioconversion of fish waste to produce organic liquid fertilizer.

Introduction :

Fertile soil is the greatest terrestrial stock that supplies all essential nutrients for the growth of healthy and productive fish species. An organic fertilizer improves soil structure, slowly releases the nutrients and increases beneficial microbial activity and thus serves as a perfect alternative to chemical fertilizers. In recent times, attention has been paid on safer organic foods with high quality. Composting and fermentation methods have regained focus as they are accepted ecologically. The obtained products are less expensive and promote plant growth. They are non-polluting and therefore safe to use in pisciculture. More than 70% of fish waste is obtained from the fish processing industry. Environmental problems caused by fish waste can be minimized by transforming them in to useful products like fertilizers as they are rich in essential macro and micronutrients. Fish waste is the right method with many advantages when carbon source, moisture and aeration were provided in right proportion. There are some potentials for gaining more value from fish wastes. Fish rich in valuable minerals, enzymes, pigments and flavors that are required by many industries including food, agriculture and pharmaceuticals. Elsewhere, fish waste was converted into fishmeal or utilized in the production of organic fertilizers and composts which have significant benefits over chemical-based products.

Objectives :

- i) Our main objective is to evaluate the productions of fish silage as one of the alternative ways in managing fish wastes and by-products by converting these wastes into liquid organic fertilizer.
- ii) To analyze the physical, chemical, mineral and microbial composition of this liquid fertilizer.
- iii) To examine the output of this fertilizer for growing some agricultural crops.
- iv) To examine the output of this fertilizer for socio-economic benefit

Progress achieved :

- ◆ Preliminary analysis on the potential of organic fertilizer in agricultural sector was done at the 1st quarter of the scheduled duration. This exposed the necessity to produce fertilizer to flourish and support vegetable gardening specially rooftop farming in

- ◆ *Mohajira Begum, PSO*
- ◆ *Sadia Afrin, SSO*
- ◆ *Md. Zia Uddin*
Al Mamun, SO

Bangladesh. A huge amount of fish wastes is dumped off year causing serious threat to the environment. This becomes a life-threatening concern globally. The wastes drastically pollute the environment. So, if the wastes can convert into any usable products, it could protect the environment and benefit the socio-economic condition of the country at a large scale. So, the project has undertaken to explore the promising conversion of the fish wastes into organic fertilizer.

- ◆ About 25 scientific papers and reports have been read to gather a rich knowledge on the fertilizer formulation from fish wastes in different countries across the world.
- ◆ The raw materials (fish wastes) have been collected at the 2nd quarter of the project from fish markets nearby and brought back to the laboratory for further experiment
- ◆ The fertilizer produced accordingly following proper methodology.
- ◆ Nutritional composition of the fertilizer has been estimated at the 2nd half of the project.
- ◆ Microbiological assessment and physical properties of the fertilizer were determined.
- ◆ The formulated fertilizer has been applied on different species of plants and observation of its impact on the plants growth rate is going on.

Technology of Animal Food Products Division

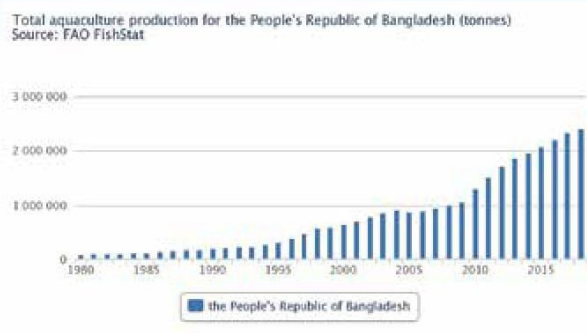
1. Fish Technology Research Section

II. Title : Preparation of cost-effective fish feed from indigenous sources for Thai koi.

- ❖ *Mohajira Begum, PSO*
- ❖ *Md. Zia Uddin*
- Al Mamun, SO*

Background of the project proposals :

We are now in a position to give special attention for fish culture both in personal & commercial level to increase the fish production to meet up protein consumption.



Rationale of the study :

- i) Using organic sources in fish feed can be eco-friendly and a best way to thrive the growth of the fish in an economic way.
- ii) There are more than 35 low price raw materials found locally in Bangladesh can be used in the preparation of supplementary feed of fish and shrimp (Ali and Hoq, 2010).

III) Current status of the research and development in the subject:*

Few studies have been undertaken in China, India and Thailand for the development of organic fish feed.

Objectives:

- i) To assess the potential of the organic sources to develop feed for koi fish.
- ii) To compare the different types of commercial fish feed.
- iii) To assess the quality of formulated fish feed.
- iv) To check and compare the growth performance of Thai koi (*Anabas testudineus*) culture using handmade and commercial fish feeds.

Progress Achieved:

Literatures regarding fish feed preparation from indigenous raw materials has been studied both from home and abroad. The quality parameters of each ingredient used for the formulation of koi fish feed has been analyzed. The data obtained in the experiment compared with commercial fish feed data. After the analysis each ingredient has been taken in a certain ratio to formulate targeted feed with a required level of nutritional quality parameters.

Technology of Animal Food Products Division

2. Meat, Poultry and Slaughter House Waste Research Section

I. Title : Development of meat products with active compound, micro-encapsulated by phyto-ingredients.

Introduction :

Over the centuries, people's views on eating have evolved. Food is no longer merely thought of as a source of the nutrients required to ensure healthy growth and development. Additionally, food is thought to play a significant role in the prevention of several dietary related disorders and offers a number of health advantages. As a result, the food business makes a lot of effort to increase the food's nutritional value. Functional compounds are added to food to improve its nutritional and health value. Both plant and animal products are excellent sources of useful elements and can try to compensate for each other's shortcomings to produce a suitable food product. The concept of enhancing original products with elements that promote health is the foundation for the manufacturing of food with a higher health impact. However, one alternative is to encapsulate the functional components using food grade materials or the food item itself as an encapsulant to improve the stability of active chemicals and nutritional quality of foods. Encapsulation, which is the process of trapping active ingredients inside of a carrier material, is a helpful strategy to enhance the distribution of bioactive chemicals and living cells into foods. Meat products could be augmented with functional elements such as fatty acids, minerals, vitamins, plant antioxidants, dietary fibers, probiotics, or bioactive peptides to generate value-added industrial products.

- ❖ *Mohammad Mahfuzur Rahman, PSO (PL)*
- ❖ *Abu Tareq Mohammad Abdullah, PSO*
- ❖ *Tanzir Ahmed Khan, PSO*
- ❖ *Md. Alamgir Kabir, PSO*
- ❖ *Dr. Sharmin Jahan, SSO*
- ❖ *Md. Motalab, SSO*

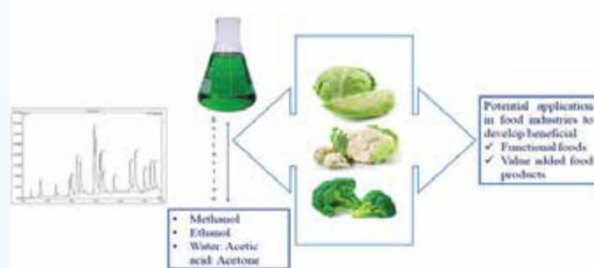


Fig.: Phytochemical screening of Brassica vegetables extracted in different solvents by HPLC-DAD

The main objectives of the proposed research project are

- i) To extract, characterize and study the activity of functional compounds
- ii) To develop micro-encapsulation method to encapsulate functional/active compound by phyto-ingredients
- ii) To apply the developed micro-encapsulated compound in processing of meat products

Technology of Animal Food Products Division

3. Milk, Dairy and Fermented Food Product Research Section

I. Title : Improvement of Cheese and Yogurt Quality through CRISPR-Cas9 Technology.

- ❖ *Dr. G M M Anwarul Hasan, SSO (PL)*
- ❖ *Dr. Md. Abdus Satter Miah, CSO*
- ❖ *Dr. Abhijit Chowdhury, SSO*

Introduction:

CRISPR technology is a simple but efficient method for genome editing. It enables scientists to easily change DNA sequences and gene function. CRISPR technology is now using to develop quality of Yoghurt and Cheese. The CRISPR DNA sequences are like genetic fingerprints filed away from past viral invaders. Preliminary, we have selected some genes as our potential target and we have designed our experiments based on those genes to produce yogurt with better texture and flavor.

Objectives:

- i) Desired no. of culture strains will be isolated based on field study in BCSIR Lab.
- ii) Desired properties of strains will be changed by insertion, deletion or substitution in genomic level.
- iii) Improved quality of Cheese, Yogurt will be developed via new genetically designed bacteria.
- iv) Establishment of CRISPR technology in BCSIR labs.

Progress Achieved:

Culture strains isolated and modification is completed. One article related to CRISP-Cas9 gene modification is ready for submission in peer reviewed Journal.

Technology of Animal Food Products Division

3. Milk, Dairy and Fermented Food Product Research Section

II. Title : Development of Sugar-free Ice Cream.

Introduction:

Ice cream has become a popular food item among people of all ages. The consumption of Ice cream increasing day by day in Bangladesh. These industries are Tk1,200 cr value industry and grows at 15% rate. But it is considered to be unhealthy because of high sugar and fat contents. So, this is not advisable for regular consumption for all age groups including children, young adults, and in particular diabetic people. So, we are going to develop a Sugar free healthy ice-cream that can be consumable by diabetic patients.

- ❖ *Dr. G M M Anwarul Hasan, SSO (PL)*
- ❖ *Khondoker Shahim Ahmed, SSO*
- ❖ *Dr. Kanika Mitra, SSO*
- ❖ *Dr. Md. Abdus Satter Miah, PSO*

Objectives:

- i) To develop sugar free ice-cream.
- ii) To check the nutritive values of develop products.
- iii) To compare to nutritional and organoleptic quality with the locally available ice-cream.

Progress Achieved:

Sugar free Ice cream developed, we are now checking the quality of developed Ice-cream

III. Title : Estimation of Pesticides and Drug Residues in Milk and Dairy Products.

Introduction:

Food safety is a term broadly applied to food quality that may adversely affect human health. There are two major areas of concern over the presence of residues of pesticides and drug residues in animal-derived foodstuffs with regard to human health. Bangladesh government has taken necessary steps and published a gadget on July 10, 2017 for the safety concern of Bangladeshi peoples. Our current project aims to detect the Health Hazardous chemical Pollutants, Toxin and Harmful Residues in Dairy products.

- ❖ *Dr. G M M Anwarul Hasan, SSO (PL)*
- ❖ *Khondoker Shahim Ahmed, SSO*
- ❖ *Dr. Md. Abdus Satter Miah, PSO*
- ❖ *Dr. Md. Humayun Kabir, SSO*
- ❖ *Dr. Mohammad Nazrul Islam Bhuiyan, PSO*

Objectives:

- i) Development of methods for Pesticides.
- ii) Development of methods for Drug Residues.

Progress Achieved:

We checked some Pesticides and Drug Residues in Milk and dairy products and with some results we published two articles.

C. Technology of Food Grains, Legumes and Oil Seeds Division

1. Cereal Technology Research Section

I. Title : Cereal-Based Functional Foods for Young Children.

- ❖ *Dr. Md. Abdus Satter Miah, CSO (PL)*
- ❖ *Md. Abdul Jalil, PSO*
- ❖ *Md. Faridul Islam, SSO*
- ❖ *Nusrat Abedin, SSO*

Introduction:

Functional food is a food that contained adequate amounts of biologically active components in addition to their basic nutrients that can have a positive impact on the health of the consumer. Such food improves the general and physical conditions of human organisms and /or decrease the risk of occurrence of disease. Several cereal- based (rice, oatmeal, semolina, green banana) and chicken –based diets have been found to be clinically useful. Specially green banana is rich in amylase-resistant starch (ARS), has been reported to protect against chemically induced damage of gastrointestinal mucosa in animals. Thus the resistant starch of green bananas seems to be potential therapeutic agents for diarrhoea.

Objectives:

The main objective of this research project is to develop and evaluate prebiotic containing cereal- based functional food for young children which is cheap, easily accessible and have biologically active components to reduce disability and death among children due to infectious disease.

Progress achieved:

A cereal-based food product with green banana has been developed. One process has been submitted. Verification process is going on.

Technology of Food Grains, Legumes and Oil Seeds Division

2. Baby Food, Supplementary Food and Legume Product Section

I. Title : Development of nutritive food products using gluten free raw materials.

Introduction :

Gluten is a protein found in wheat, barley, rye, and triticale (a combination of wheat and rye). High molecular gluten and subunits of gluten protein consequents damage and inflammation to the small intestine and causes malnutrition. It acts as a "glue" in foods such as cereal, bread, and pasta, helping them hold their shape. gluten can trigger coeliac disease, non-coeliac gluten sensitivity, gluten ataxia

Objectives of the research:

Even though gluten free products are very common in western countries but in Bangladesh, it is rare to find any gluten free food stuff which is being producing locally. Therefore the objectives of this projects are---

- i) To develop gluten free products.
- ii) To study the nutritional composition of newly developed product.
- iii) To study the shelf life of newly developed product.
- iv) Toxicity analysis of the newly developed product.

Progress Acieved:

Literature survey is going to get information about the gluten free raw materials. Development of one process and the nutritional analysis of the product is going on in the laboratory.



Gluten Free Energy bar

- ❖ *Dr. Kanika Mitra, SSO*
- ❖ *Ummeey Hafsa Bithi, RC*

Technology of Food Grains, Legumes and Oil Seeds Division

2. Baby Food, Supplementary Food and Legume Product Section

II. Title : A study on nutritional facts and adulteration of baby foods available in local markets in Bangladesh.

- ♦ *Dr. Kanika Mitra, SSO (PL)*
- ♦ *Dr. Md. Abdus Satter Miah, PSO*
- ♦ *Tanzir Ahmed Khan, SSO*
- ♦ *Mohammad Tariqul Haque, SSO*
- ♦ *Dr. GMM Anwarul Hasan, SSO*
- ♦ *Ummey Hafsa Bithi, SO*
- ♦ *Dr. Nazim Uddin, SSO*
- ♦ *Md. Ahedul Akbor, SSO*

Introduction :

In recent days human rights for safe foods are totally disregarded in Bangladesh. As per the news, publications, features indicate most of the foods are either adulterate in various degrees or unsafe for human consumptions. Normally milk is adulterated with water, starch, skim milk powder, sugar, detergent, and fat, recently formalin also added with milk to increase the shelf life of milk. It was reported previously that heavy metals like lead and arsenic was also found in milk. That's why it is very essential to detect the prevalence of adulteration of milk. The present experiment will be conducted to assess consumer awareness about baby foods, milk, and others dairy products to get a span shot about the nutritional facts as well as to know the adulteration of milk.

Objectives of the research:

- i) To analysis the nutritional facts of the milk and dairy products.
- ii) To analysis the heavy metals.
- iii) To analysis melamine of the milk and dairy products.
- iv) To analysis the preservatives of milk and dairy products.

Progress Acieved:

- Different kinds of baby foods, milk and dairy products will be collected from the local markets of Bangladesh.
- Nutrition facts will be compared according to the BSTI standards.
- The vitamins and pesticides analysis of collective products will be analyzed by HPLC and GCMSMS respectively.
- Melamine will be analyzed by HPLC.
- Heavy metals will be analyzed by AAS.
- Preservatives will analyzed by fssai methods .

Technology of Food Grains, Legumes and Oil Seeds Division

3. Oil seed and Lipid Technology Research Section

I. Title : Formulation of ω -3 enriched feed for cat fish (*Tengara mystus*) and monitoring its effect on fish fatty acid composition.

Introduction :

Omega-3 acids play a great role in human nutrition by reducing the risk of heart disease as well as diabetes, cardiovascular disease, arthritis and cancer. Consuming omega-3 enriched fish can reduce both plasma and liver cholesterol concentration. Furthermore, omega-3 fatty acids help lower blood triglyceride levels. Marine fishes are natural sources of omega-3. But our general mass can hardly consume marine fish due to their high cost and non-availability. Therefore, the main objective of this project is to enrich omega-3 fatty acid into locally available fish like tengra, tilapia etc so that omega-3 can be easily consumed by general people of Bangladesh.

- ◆ *Md. Rezaul Karim, PSO, (Project Leader)*
- ◆ *Md. Alamgir Kabir, PSO*
- ◆ *Sharmin Akter Lisa, SSO*
- ◆ *Md. Motaleb, SSO*

Objectives :

- i) Formulation of ω -3 enriched fish feed
- ii) Estimation of ω -3 fatty acids in cat fish (*Tengara mystus*)

Progress achieved :

Several commercial fish feeds have been collected. Fatty acid composition has been analyzed by Gas Chromatograph (GC).

Technology of Food Grains, Legumes and Oil Seeds Division

3. Oil seed and Lipid Technology Research Section

II. Title : Study on degradation of different vegetable oils during thermal processing and storage.

- ❖ *Sharmin Akter Lisa, SSO (Project Leader)*
- ❖ *Md. Alamgir Kabir, PSO*
- ❖ *Mohammad Mahfuzur Rahman, PSO*

Brief Introduction: :

Vegetable oils are one of the most important components of human nutrition. Nutritive value of different food products markedly depend on the quality of oil used. Because of consumer demand, a number of vegetable oils persist in local market and their processing or refining steps are different which affect the quality of edible oils. Oxidative deterioration, loss of vitamins, trans fat, total polar compounds, acrylamide etc formation happen due to thermal decomposition and long time storage. Now-a-days, the concern of using edible oils are increasing due to their health impact, but unfortunately there is practically no information about the quality of oils found in local market. There is also no information about the change in quality as well as formation of compounds like trans fat, polar compounds and acrylamide which have negative health impact during cooking and frying foods with vegetable oils. Therefore, to make awareness about it and optimization of oil processing in respect to time and temperature is necessary. According to these above perspective, this R&D has been proposed.

Objectives :

- i) Estimation of oxidative deterioration, trans fatty acids, total polar compound and secondary oxidative metabolites, thermal degradation of different vegetable oils due to refining, processing and storage.
- ii) Optimization of processing time and temperature to obtain the maximum stability.
- iii) Formulation of a blended oil to ensure both nutritional value and oxidative stability.
- iv) To obtain a recycling technology of processed oil.

Progress achieved :

Oil samples used to prepare street food have been collected and analyzed, manuscript writing is ongoing. One paper has published.

D. Microbiology Division

1. Food Microbiology Research Section

I. Title : Establishment of New Foodborne Pathogens from Fast Food and Beverages

Introduction :

Assessment of food from microbiological aspects is necessary to ensure the safety and quality. Microbiological analysis of foods is based on the detection of microorganisms by visual, biochemical, immunological, or genetic means, either before enrichment (quantitative or enumerative methods) or after enrichment (qualitative methods, also known as presence/absence tests). Many food spoiling microorganisms are found in different foods such as *Pseudomonas spp.*, *S. putrefaciens*, *Bacillus spp.*, *Enterobacteriaceae* and sometimes *Brochothrix thermosphacta* (Gram et al., 2002). But there are so many unknown microorganisms which are not identified yet and need to be detected. Hence, establishment of new facilities and parameters are also important to identify the related microorganisms for ensuring food safety.

- ❖ *Dr. Sahana Parveen, CSO (PL)*
- ❖ *Dr. Mohammad Nazrul Islam Bhuiyan, PSO*
- ❖ *Nourin Tarannum, SO*
- ❖ *Suvra Das, SO*
- ❖ *Dr. S. Anjuman Ara Khanom, CSO*
- ❖ *Meher Nigad Nipa, SSO*
- ❖ *Dr. Sadia Afrin, SSO*
- ❖ *Anjumanara Khatun, PSO*
- ❖ *Salma Ahmed, PSO*

Objectives :

- i) Morphological and biochemical identification of microorganisms.
- ii) Molecular identification by extraction and Purification of bacterial genomic DNA from food samples.
- iii) Immunological assay of microorganisms by direct competitive Enzyme Linked Immunosorbent Assay (ELISA).
- iv) Establishment of new facilities and parameters to identify the unknown microorganisms.
- v) Proximate analysis of the collected samples.
- vi) Detection of antimicrobial activity of isolated pathogens.
- vii) Microbiological quality assessment of raw milk, pasteurized milk and milk based beverages (mattha, lassi, laban)

Progress Achieved:

- Thesis submission on Microbiological quality analysis of some beverages collected from Dhaka city.
- Thesis submission on Microbiological quality assessment of frozen meat products from different areas of Dhaka city.
- Isolation and identification of spoilage causing bacteria from frozen snacks collected from different grocery shops of Dhaka city.
- Morphological and biochemical analysis of different species of bacteria isolated from frozen snack samples.
- Manuscript submission on "Antibiotic resistance pattern of isolated *Escherichia coli* and *Staphylococcus spp.* from raw milk, pasteurized milk and milk based beverages of Dhaka city, Bangladesh.

Achievements: 2 research papers have been published and 1 research paper has been submitted.

Microbiology Division

1. Food Microbiology Research Section

II. Title : Establishing molecular identification facilities for detection and characterization of *Cronobacter* spp. from powdered infant milk formula (PIF) in BCSIR.

- ❖ Meher Nigad Nipa, SSO, (PL)
- ❖ Dr. Mohammad Nazrul Islam Bhuiyan, PSO
- ❖ Nourin Tarannum, SO
- ❖ Dr. Sadia Afrin, SO

Introduction :

Cronobacter spp. formerly known as *Enterobacter sakazakii* is an occasional contaminant of powdered infant formula (PIF). This pathogen has been associated with out-breaks of a rare form of infant meningitis, necrotizing enterocolitis (NEC), bacteremia and neonate deaths. The organism is ranked by the International Commission for Microbiological Specifications for Foods (ICMSF) as a 'Severe hazard for restricted populations, life threatening or substantial chronic sequelae or long duration'. To meet the national and international entrepreneur demand for molecular identification of *Cronobacter* spp. from powdered infant milk formula (PIF) in BCSIR is a contemporary issue which needs to be solved on priority basis.

Objectives :

- i) Establishing isolation and molecular identification facilities of *Cronobacter* spp. from powdered infant milk formula (PIF) in BCSIR to meet the national interest.
- ii) Molecular characterization and antimicrobial susceptibility testing of the indigenous *Cronobacter* spp. will aid to treat it successfully in our demographic aspect.

Progress Achieved:

Quality control of all available infant formula of markets has been completed.



Microbiology Division

1. Food Microbiology Research Section

III. Title : Prevalence and Molecular Characterization of Foodborne *Escherichia coli* O157:H7 in Fish, Meat & Vegetables

Introduction :

Escherichia coli O157:H7 is a serotype of the bacterial species *E. coli* and is one of the Shiga-like toxin-producing types (STEC) of *E. coli*. It is a major cause of diseases, typically foodborne illness, through consumption of contaminated and raw food, including raw milk and undercooked ground beef. Infection with this type of pathogenic bacteria may lead to hemorrhagic diarrhea and kidney failure- hemolytic uremic syndrome (HUS) ; these have been reported to cause the deaths of children younger than five years of age, of elderly patients, and of patients whose immune systems are otherwise compromised. Transmission is via the fecal-oral route and most illness has been reported through distribution of contaminated raw leafy green vegetables, undercooked meat and raw milk. About 2–7% of infections lead to these complications. In the United States, HUS is the principal cause of acute kidney failure in children, and most cases of HUS are caused by *E. coli* O157:H7. It is highly virulent, with a low infectious dose: an inoculation of fewer than 10 to 100 CFU of *E. coli* O157:H7 is sufficient to cause infection, compared to over one-million CFU for other pathogenic *E. coli* strains.

- ❖ Meher Nigad Nipa, SSO (PL)
- ❖ Dr. Sahana Parveen, CSO
- ❖ Nourin Tarannum, SO
- ❖ Dr. Mohammad Nazrul Islam Bhuiyan, PSO
- ❖ Dr. Sadia Afrin, SSO

Objectives :

- i) To determine the prevalence of foodborne *E. coli* O157:H7 for food hygiene management and epidemiological investigations.
- ii) To detect stx1 & stx2 genes in *E. coli* O157: H7 isolated from various geographical areas of Bangladesh, molecular surveillance and genetic characterization of this pathogen in Bangladesh aspect to meet national interest.

Progress Achieved:

- Isolation and identification of *E. coli* O157: H7 from vegetables and raw meat samples have been completed.
- Antibiotic susceptibility testing of the isolates has been done.



Microbiology Division

2. Industrial Microbiology Research Section

I. Title : Bioactive and food grade pigment from marine sources

Introduction :

Natural pigments can be obtained from two major sources such as: plants and microorganisms. The pigments production from microorganism is becoming more attractive as compared to plants derived pigments because of the rapid growth and less culture expense of microorganisms. Bacteria can produce water soluble or insoluble pigments. The pigment molecules are synthesized in cell wall or periplasmic space of bacteria. The utilization of natural pigments in foodstuff, dyestuff, cosmetic and pharmaceutical manufacturing processes have been increasing in recent years. Bacterial pigment production is now one of the emerging fields of research to demonstrate its potential for various industrial applications. Pigmented microorganisms have awakened the interest of the scientific community and their biotechnological potential in processes like fermentation and bioprocess engineering.

- ❖ *Dr. Mohammad Nazrul Islam Bhuiyan , PSO,(PL)*
- ❖ *Dr. Abhijit Chowdhury*
- ❖ *Dr. Sadia Afrin, SO*

Objectives :

- i) Isolation and optimization of novel pigment producing microorganisms from different sources.
- ii) Investigation of growth conditions (different media, temperature, pH, time period, salinity etc.) to achieve high pigment production.
- iii) Purification and Characterization of microbial pigment.
- iv) Development of industrial technologies.

Progress Achieved:

- Thirteen (13) pigment producing bacterial isolates were isolated from the soil samples.
- Different types of color such as yellow, orange, cream, brown color pigment producing bacteria were observed in the soil sample.
- Bacteria isolate was identified by using BIOLOG™ identification system.
- The physico-chemical analyses revealed that pH 6.5, temperature 37 °C and salt concentration of 2-14% were optimum both for bacterial growth and pigment production.

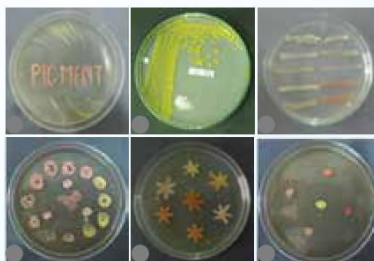


Fig. Pigment producing microorganisms

Microbiology Division

2. Industrial Microbiology Research Section

II. Title : Isolation of microbial enzymes (lipase, amylase, protease etc.) from environmental microbes and their Industrial applications.

Introduction :

Microbial enzymes play a major role in food industries because they are more stable than plant and animal enzymes. Many of these enzymes find numerous applications in various industrial sectors, e.g. amylolytic enzymes find applications in food, detergent, paper and textile industries. They are used for the production of glucose syrups, crystalline glucose, high fructose corn syrups, maltose syrups, etc. In detergent industry, they are used as additives to remove starch-based stains. In paper industry, they are used for the reduction of starch viscosity for appropriate coating of paper. In textile industry, amylases are used for warp sizing of textile fibres. Similarly, enzymes like proteases, lipases or xylanases have wide applications in food sectors. Presently our industries met their demands by importing them from foreign countries.

♦ *Dr. Mohammad Nazrul Islam Bhuiyan, PSO,(PL)*
♦ *Dr. Sadia Afrin, SO*

Objectives :

- i) Isolation and identification of novel enzyme producing microorganisms from different sources.
- ii) Production conditions optimized (temperature, pH, time period, salinity, metal ions etc.) to achieve high enzyme production and better enzyme activity.
- iii) Development of industrial technologies.

Progress Achieved:

- Possible candidates were isolated from the soil, water and air sources those have enzyme producing capability.
- Bacteria isolate was identified by using BIOLOG™ identification system.
- Enzyme activities were determined under wide range of pH, temperature and salinity (NaCl).
- RT-PCR and 16S rDNA sequence analyses were also carried out.



Fig: A. Lipase enzyme producing bacteria, B. Clear zone formation on TBA medium
C. Bacteria under microscope, D. RT-PCR result of isolate.

Microbiology Division

2. Industrial Microbiology Research Section

III. Title : Screening of antibiotic producing uncultured bacteria for inhabitation pathogen without detectable resistance

Brief Description :

- ❖ *Dr. Mohammad Nazrul Islam Bhuiyan , PSO,(PL)*
- ❖ *Dr. Sadia Afrin, SO*

New antibiotics are needed against antibiotic resistance organisms. The exponential rise of antibiotic drug resistance is a considerable threat to global public health. Researchers are continually searching for the underlying sources of antibiotics that will solve this resistant phenotype. Antibiotics producing organisms were discovered using a new method of culturing organisms from soil, marine, cave or others environment, which allowed researchers to grow some previously uncultured organisms, which produces the antibiotic. In this study, antibiotics producing uncultured organisms will show to kill pathogens without the organisms enveloping a resistance to the antibiotic. Research is also proposed to identify organisms and specific growth factors from cultured organisms to enhance vigorous growth of previously uncultured organisms in laboratory conditions. It is also proposed, which mechanisms are responsible for uncultivability of the microbial majority and developing ways to circumvent limitations of conventional cultivation techniques and why uncultivated organisms are uncultivated. We will be trying to learn how to design the antibiotic treatment protocols in such a way that they will be effective but won't promote the spread of antibiotic resistance. The uncultured organisms will hopefully result in the discovery of future potential new antibiotics. Overall, we believe that this research is a strong emphasis on the development of new trend in the field of uncultured organisms and antibiotic drug resistance. These are the issues we're hoping to address in follow-up research.

Objectives :

- i) Discovery of uncultured organisms
- ii) To developed several methods to grow uncultured organisms by cultivation in vitro or by using specific growth factors.
- iii) Growth Factors (Chemical compounds/antibiotics)
- iv) New sources of antibiotics which have no side effects and, even better, appeared to deny pathogens easy recourse to resistance.
- v) A better way to access to uncultured microbes and resistance organisms.
- vi) Our impression is that nature has many uncultured organisms which produce many novel compounds that will evolve to be free of resistance.
- vii) To design antibiotic protocols to avoid the spread of antibacterial resistance.
- viii) Antibiotics (Next step in future)

Work progress:

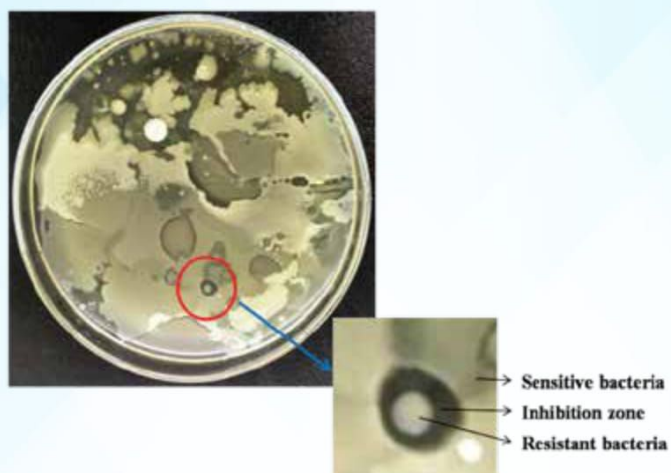


Figure 1 Bacterial colony from Sundarban mangrove forest soil in NBA media

- One possible candidate was isolated from the soil of Sundarban Mangroove Forest (Bangladesh) soil that has important physiological effects to inhibit multi drug resistant organism, especially *S. rubidaea*.
- Bacterial isolate was identified as *Bacillus amyloliquefaciens* using BIOLOG™ identification system and confirmed to be *B. amyloliquefaciens* strain through 16S rDNA sequence analysis.
- The growth and antagonistic activity of this potential strain was shown to be stable under wide range of pH, temperature and salinity (NaCl).

Microbiology Division

2. Industrial Microbiology Research Section

IV. Title : “Development of potential anti-biofilm compounds for pharmaceutical industries.

Brief Description :

- ❖ Dr. Abhijit Chowdhury, SSO, (PL)
- ❖ Dr. Mohammad Nazrul Islam Bhuiyan, PSO
- ❖ Dr. Sadia Afrin, SSO
- ❖ Dr. Abdus Satter Miah, CSO
- ❖ Dr. Ashis Kumer Sarkar, CSO

Biofilm forming bacteria attach to surface and produce extracellular polymeric substances (EPS) matrix as a major constituent. Bacterial biofilm pose a serious problem for public health because of the increased resistance to antimicrobial agents and the potential for these resistant organisms to cause infections in patients and with implant medical devices. The current work deals with the isolation and studies on characterization of biofilm-forming bacteria isolated from contaminated soil and water and to screen potential antibiofilm agent for the isolated biofilm forming bacteria. For potential biofilm producing bacteria, Soil and water were collected from Dhaka. Morphological, Biochemical and microorganism identification system (Microstation 2 Reader BIOLOG™) confirmed two isolates as *Pseudomonas aeruginosa* and *Staphylococcus epidermidis*. Biofilm formation assay was carried out by tube assay and *microtiter plate assay*. The Congo red agar (CRA) test based on the subculture of the bacterial strains on brain heart infusion agar (BHIA), supplemented with sucrose and Congo red dye confirmed the biofilm formation. Currently we are trying to examine the effect of different sources of carbon and physiological conditions on biofilm growth.



Fig: The Congo red agar (CRA) test based on the subculture of the bacterial strains on brain heart infusion agar (BHIA), supplemented with sucrose and Congo red dye confirmed the biofilm formation

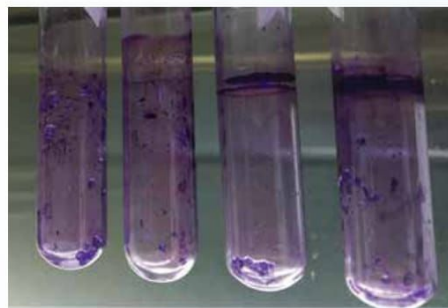


Fig: Tube Assay: IM-SE021 IM PA025
 IM-SE021 *Staphylococcus epidermidis*
 IM PA025 *Pseudomonas aeruginosa*

E. Biochemistry and Applied Nutrition Division

1. Applied Nutrition Research Section

I. Title : Development and preparation of nutritious foods using locally available raw materials to combat Geriatric malnutrition

Introduction :

A nutrient is a substance used by an organism to survive, grow and reproduce. Essential nutrients is a nutrient which the body cannot synthesis on its own. These nutrients are necessary for the body function properly. Essential nutrients are of two types. 1. Macronutrients (Carbohydrate, Protein and Fat) .2. Micronutrients (Vitamins and Minerals). We get these essential nutrients from foods. During old age there is loss of appetite. So the amount of food intake gets gradually reduced. Most people do not know the distribution of nutrient in foods. This leads to malnutrition and deficiency diseases. A food low in volume but high in all essential nutrient can be used to overcome the malnutrition and malnutrition related disease in the Geriatric population.

- ❖ *Salma Ahmed, PSO (PL)*
- ❖ *Kanika Mondal, PSO*
- ❖ *Md. Tariqul Hassan, PSO*
- ❖ *Dr. Mohammad Nazrul Islam Bhuiyan, PSO*
- ❖ *Dr. Sadia Afrin, SSO*

Objectives :

- i) To develop Macro and Micronutrient enriched foods using locally available raw materials to combat Geriatric malnutrition
- ii) The nutrient rich processed food will improve the nutritional status of the old age group.
- iii) This will help to develop agro based Industry indirectly.

Progress Achieved:

- Four Fibre rich micronutrient based geriatric food products (FC) were formulated.
- Products were formulated with different antioxidant containing traditional and non-traditional tropical fruits.
- Products have been evaluated by Nutritionally, Microbiologically and Toxicologically (Toxic metals).
- Shelf life (up to 9 month) study of the developed FC products on storage has been under experiment.



a. Fiber Rich Caloric Food Product



b. Fiber Rich Micronutrient Based Fruit Chips

F. Food Science and Quality Control

2. Food Enzymology Research Section

I. Title : Development of malted supplementary foods for children (age: 6-14)

- » *Dr. Md. Mahbubar Rahman, PSO*
- » *Umma Fatema Shahjadee, PSO*

Introduction :

Germination or malting technology increases digestibility, nutritional values, palatability and flavors of seeds. It eliminates toxic and undesirable substances. Different digestive enzymes (α -amylase, Invertase, Protease, Lipase, etc.) play a vital role to digest foods. In childhood, the vital enzyme secretion remains very poor. So children (age: 6-14) need easily digestible foods. For that reasons, R & D research works are very much essential for the development of malted supplementary foods (age: 6-14).

Objectives :

- i) To produce malted supplementary foods for children (age: 6-14).
- ii) To compare the enzymes activity of raw and germinated materials (cereals, pulses, oilseeds, fruits, vegetables etc.).

Food Science and Quality Control

1. Food Toxicology Research Section

I. Title : “Effects of Aflatoxins (AFs) in tissues of cultured prawn and finding possible remedies for the Aflatoxin detoxification of feed.”

Introduction :

In Bangladesh, there has not been any concerted attempt to study aflatoxin contamination in alive prawn. The information on biochemical changes, ultra structural alterations, and synergistic effect of aflatoxins and heavy metals on alive prawn fed aflatoxin incorporated feed is limited. Besides there is no published information on detoxification of aflatoxins (AFs) toxicity in alive prawn. Successful completion of the research especially on detoxification of aflatoxins (AFs) toxicity to increase the production of prawn which is one of the most important aqua culture production sectors of Bangladesh. It also helps to earn more foreign currency through this sector.

- ❖ *Mohammad Tariqul Hassan, PSO & PL*
- ❖ *Dr. Md. Nurul Huda Bhuiyan, PSO*
BCSIR Rajshahi Laboratory
- ❖ *Maksuda Begum, SSO*
BCSIR Chattogram Laboratory
- ❖ *Dr. Tasnim Farzana, PSO*
- ❖ *Md. Mahfuzul Hasan, SSO*
- ❖ *Paroma Arefin, SSO*

Objectives :

The present work is undertaken with the following objectives:

- i) Assessment of Aflatoxin contamination in prawn and corresponding feed.
- ii) To evaluate the growth performance factor, biochemical and histological changes of post Larval prawn that affected by aflatoxins (AFs) toxicity.
- iii) Finding possible remedies for aflatoxin affected prawn through quality feed.

Progress Achieved:

Two hundred seventy samples of cultured prawn (Galda) along with their corresponding feed were collected and analyzed from Khulna, Bagerhat and Cox Bazar region to assess aflatoxin contamination level. Further analysis to evaluate the growth performance factor, biochemical and histological changes of post larval prawn are going on

Food Science and Quality Control

1. Food Toxicology Research Section

II. Title : “A cross sectional study of plasticizers on diabetes and cardiovascular disease.”

- ❖ *Dr. Md. Nurul Huda Bhuiyan, PSO (PL), BCSIR Rajshahi Laboratory*
- ❖ *Mohammad Tariqul Hassan, PSO*
- ❖ *Prof. Dr. Abdul Mannan, Anwar Khan Modern Hospital*
- ❖ *Maksuda Begum, SSO, BCSIR Chattogram Laboratory*
- ❖ *Md. Mahfujul Hasan, SSO*
- ❖ *Paroma Arefin, SSO*

Introduction :

Plasticizers like phthalates and bisphenols are widely used in plastics and resins. In one year, over 11 billion pounds of phthalates and over 6 billion pounds of bisphenols are produced throughout the world. Some household items that have BPA (Bisphenol A) and phthalates like DBP, DEHP, DiBP etc in them are plastic food containers, processed food packages, the lining in metal cans, dental sealants and filling materials, infant bottles, plastic water bottles, milk pack, microwave containers, baby feeding bottles, medical devices, and toys. These chemicals are leached out when the material is exposed to an acidic environment or heat. It then leaches into foods and drinks that we consume or into our skin by touching the materials. An analysis by the Centers for Disease Control and Prevention (CDC) found that 93% of Americans have detectable levels of BPA in their bodies. Several studies worldwide determined BPA in canned food or plastic food package, including US, Canada, Japan, Korea, New Zealand, UK, and Belgium. Plastic materials containing phthalates as plasticizers are also used on a large scale. They are also detected in many countries and routinely measure in EU countries and USA for monitoring. According to WHO, an estimated 10 million people in Bangladesh have diabetes and 5.09% of total deaths from Diabetes Mellitus with 17 % of death for cardiovascular disease. As, we do not have any regulations and exposure data in Bangladesh, it is urgent to understand the un-intentional chemical exposure like phthalates and bisphenols and other plasticizers to Bangladeshi people and identify the source and association between the chemical and health effects like diabetes and cardiovascular disease. Apart from these, it is also important to identify the safe plasticizers for industrial production of food packaging, plastics and can production.

Objectives :

The present work is undertaken with the following objectives-

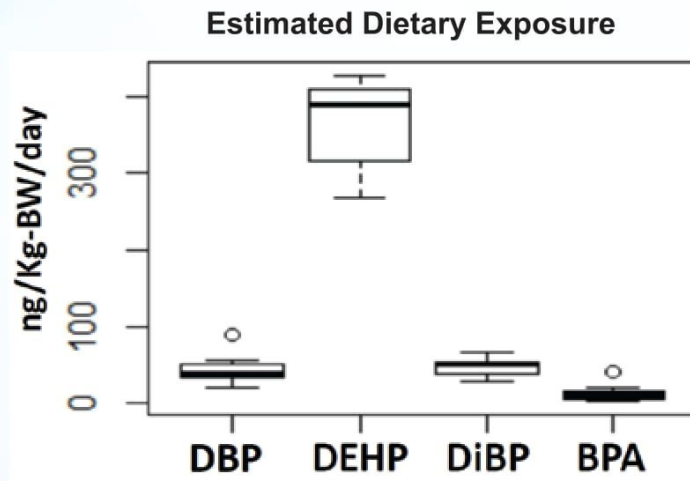
- i) To understand the phthalates and bisphenols exposure level of general population.
- ii) Evaluate the association with diabetes and cardiovascular disease.
- iii) Identify the exposure source.
- iv) Find out the average daily dose (ADD) and hazard quotient (HQ).
- v) Identify the safe plasticizers for food packaging.

Progress Achieved:

The following works have been done-

1. Exposure level of plasticizers like phthalates (DBP, DiBP, DEHP) and bisphenols (BPA) were identified among 126 control and Diabetic patient.
2. A high exposure of DEHP and diabetes were evaluated.
3. Ten different types of packaged food were analyzed for phthalates and BPA.
4. All of them contain DEHP and BPA were detected highest frequency in bottled water, liquid milk, soft drinks, and juices.

Average daily dose (ADD) and hazard quotient (HQ) of these four plasticizers were determined based on the concentration determined in the food samples.



Food Science and Quality Control

2. Quality Control Research Section

I. Title: Development of nutritious instant food products from sweet potato, cabbage and pumpkin.

- ❖ *Dr. Tasnim Farzana, PSO (PL)*
- ❖ *Md. Jaynal Abedin, SSO, IFST*
- ❖ *Dr. Mohammad Nurul Huda Bhuiyan, PSO, IFST*
- ❖ *Dr. Sadia Afrin, SSO, IFST*

Introduction:

The consumption of ready-to-eat meals has been increased amongst people in modern, fast-paced lives. The ready-to-eat snacks (e.g. bread, cake, biscuits, noodles, etc.) made from traditional sources are not nutritionally rich and often contribute to the development of various diseases like obesity, high blood pressure, type-2 diabetes, cancers, etc. On the contrary, pumpkin, sweet potato, and cabbage are considered rich sources of vitamins (A, B₆, C), high fiber, potassium, iron, calcium, magnesium, and protein, which help to reduce the risk of such diseases. Therefore, introducing sweet potatoes, cabbage, and pumpkin can be a good alternative to the traditionally used vegetables for making more nutritious ready-to-eat snacks and other food products.

Socioeconomic importance:

The newly developed low-cost nutritious products from perishable vegetable sources will play a great role in the nutritional improvement of the population. Use of locally available raw materials will decrease the dependency on foreign countries for importing raw materials. Local entrepreneurs will come forward to establish new industries. Thus, Bangladesh will be industrially developed and, at the same time, protein energy malnutrition and unemployment problems will be reduced.

Objectives:

Development of different nutritionally rich ready-to-eat food products (bread, biscuit, cake, noodles, etc.) from locally available sweet potato, cabbage and pumpkin.

Progress Achieved:

- i) Two products (Sweet potato-pumpkin noodles and Sweet potato-pumpkin biscuits) have been developed.
- ii) Nutritional analysis and comparison with other locally available similar products and antioxidant analysis are in progress.
- iii) Shelf life study is going on.

Food Science and Quality Control

2. Quality Control Research Section

II. Title: Preparation of enriched food products from Foxtail millet.

Introduction:

Foxtail millet, locally known as Kaon rice, is one of the most important food crops. Due to its excellent adaptive capacity, it can be cultivated in all types of soils and can also be sustained in adverse agro-climatic conditions. Foxtail millets are rich sources of carbohydrates, essential amino acids, high fiber, vitamins (A, E, B₁, B₂, niacin, B₆, folate, and pantothenic acid) and minerals (potassium, calcium, magnesium, phosphorus, iron, zinc, and manganese). It also serves as a natural source of antioxidants in foods and as a nutraceutical and functional food ingredient in health promotion and disease risk reduction. Foxtail millet can be used in bakery items and weaning food preparation as it contains anti-allergenic and non-glutinous properties. It can be used to develop new food products to improve the health condition of the least developed population in Bangladesh.

- ❖ *Dr. Tasnim Farzana, PSO (PL)*
- ❖ *Md. Jaynal Abedin, SSO*
- ❖ *Mohammad Tariqul Hassan, PSO*
- ❖ *Dr. Mohammad Nazrul Islam*
- ❖ *Bhuyian, PSO, IFST*
- ❖ *Dr. Md. Abdus Satter Miah, CSO*

Socioeconomic importance:

The newly developed foxtail millet based bakery products will play a great role in the nutritional improvement of the population. Local entrepreneurs will come forward to establish new industries. Thus, Bangladesh will be industrially developed and, at the same time, protein energy malnutrition and unemployment problems will be reduced.

Objectives:

- i) To develop different value added products from foxtail millet (e.g. bread, biscuit, cake, noodles, etc.).
- ii) To popularize foxtail millet in Bangladesh.

Progress Achieved:

- * Two products (foxtail millet noodles and foxtail millet biscuits) have been developed.
- * Nutritional analysis and comparison with other locally available similar products and antioxidant analysis are in progress.
- * Shelf life study is going on.
- * One paper has been submitted.



**RESEARCH
ACHIEVEMENTS**

Processes and Patents

Processes

A. Process Leased out

1. Title of the process: "Preparation of Slightly Acid Hypochlorous Solution (SAHS) based disinfectant for different purposes". Anshin Bangladesh, Tejgaon, Dhaka.
2. A process for the production of "Sugarcane Lemon Drink" M/S Ripco Limited, 136, Jalalabad, Ward No-2, Byjid Bostami Road, Chattogram.

B. Processes Accepted:

1. Mohammad Nazrul Islam Bhuiyan, Sadia Afrin, Mohammad Amirul Hoque, Md. Abdus Satter Miah, Ashish Kumar Sarkar "Formulation of banana flavour". Ref: 39.02.0000.043.37.825.20/866, Date: 29.06.2021
2. Mohammad Nazrul Islam Bhuiyan, Sadia Afrin, Mohammad Amirul Hoque, Md. Abdus Satter Miah, Ashish Kumar Sarkar Farhana Nur Ahmed, Nahid Jahan "Production of stevioside from *Stevia* dry leaf" Ref: 39.02.0000.043.37.832.20/592, Date: 30.09.2021
3. Production of Cereal based fortifier for Young Children (Six months to five years). Ref: 39.02.0000.043.37.872.21/771, Date: 23.12.2021
4. Production of Cereal based fortifier for Young Children (Five to nine years) Ref: 39.02.0000.043.37.883.21/1294, Date: 23.01.2022
5. A process for the production of "Straw berry Juice Drink": Sharmin Jahan, Md. Motalab, Bushra Mumtaz, B. K. Saha, Sadia Afrin: Accepted on 18/04/2022, Ref. No. 39.02.000.043.37.890.22/1154

C. Process Submitted:

1. Mohammad Nazrul Islam Bhuiyan, Sadia Afrin, Mohammad Amirul Hoque, Md. Abdus Satter Miah, Ashish Kumar Sarkar. "Formulation of orange flavour".
2. Mohammad Nazrul Islam Bhuiyan, Sadia Afrin, Mohammad Amirul Hoque, Md. Abdus Satter Miah, Ashish Kumar Sarkar. "Formulation of lemon flavour".
3. Kanika Mondal and Salma Ahmed. "Production of Protein and Vitamin A enriched Bread Spread".

D. Special Allocation Project

01. Title : Discovery of novel antibiotics producing uncultured bacteria which kills pathogens without detectable resistance from environmental samples: pitfalls of growth factors based laboratory culture

Project Leader: Dr. Mohammad Nazrul Islam Bhuiyan

Funding year: 2021-2022

Amount of fund (in Taka): 250,000/-

Problem Statement:

Where will new antibiotics come from? This question, posed 13 years ago (Walsh 2003), still remains substantially unanswered. While a new antibacterial agent is relatively easy to discover from known sources, the hard task is finding compounds active against the desired range of pathogens, including resistant strains, and effective in experimental models of infection at dosages compatible with human administration. Thus, only compounds that have undergone extensive preclinical characterization can be considered as promising new antibiotics. Our impression is that nature has many uncultured organisms which produce many novel compounds that will evolve to be free of resistance. In this information-rich environment, is there still an innovation gap? Which, if any, of these potential new uncultured bacteria will lead to new structural classes of natural-product-derived antibiotics?

Objective of the Research Project:

During the golden era of antibiotic discovery, thousands of antibiotics were discovered, mostly from microbial sources. At a time of plenty, only few made it to the market, leaving many others behind. Microbial pathogens are becoming increasingly resistant to available treatments, and new antibiotics are badly needed, but the pipeline of compounds under development is scarce. Furthermore, the majority of antibiotics under development are improved derivatives of marketed compounds, which are at best only partially effective against prevailing resistance mechanisms. In contrast, antibiotics endowed with new mechanisms of action are expected to be highly effective against multi-drug resistant pathogens. In this research, we focus on possible alternatives to this preferred path, describing one possible source of new chemical classes and newly discovered molecules.

Progress Achieved:

- Novel Uncultured organisms
- To developed several methods to grow uncultured organisms by cultivation in vitro or by using specific growth factors.
- A better way to access to uncultured microbes.
- New sources of antibiotics which have no side effects and, even better, appeared to deny pathogens easy recourse to resistance.
- To design antibiotic protocols to avoid the spread of antibacterial resistance (next year).
- Novel growth factors/Antibiotics (Next two years if project will be extended in future)

02. “Profiling, source identification, and risk characterization of health hazard Bisphenols (BPA) in packaged food, drinks and beverages.”

Project Leader: Dr. Md. Nurul Huda Bhuiyan

Funding year: 2021-2022

Amount of fund (in Taka): 200,000/-

Progress Achieved:

In the present study, we have evaluated the Bisphenols (Bisphenol A) migration levels in food from packaging materials like water bottles, cans, juice or drink bottles, beverages, chips, poly pack for milk and microwave containers used for food/drinks. The results of the project helped us to understand the profile and the concentration level of Bisphenols (Bisphenol A) in packaged food and characterized the risk. Comparative safer plasticizer for food package is identified to ensure safe food. The outcome of this project is approaching towards healthy packaging material and safe food production which are completely sustainable. The lower Bisphenols (Bisphenol A) or safer Bisphenols (Bisphenol A) use generate fewer wastes to the environment which will mitigate the hazardous chemical pollution problem along with a sustainable food industry. Moreover, sustainable food packaging commercialization will be established which intern will give a sustainable safer packaged food.

E. Special Collaboration work:

Collaborate work with “Ministry of Disaster Management and Relief “regarding school feeding program.

F. Other research Projects:

Annual Development Program Projects: One ADP project namely “Augmentation of Technical Competency for Food Product Processing Research of IFST” is running under this section. The procurement process and civil works already is under way.

Publications

Paper published

01. Tasnu Ara, M. N. Uddin, Ummey Hafsa Bithi, Kanika Mitra*. A Study on Nutritional Assessment and Adulteration of Raw and Pasteurized Milk Collected from Local Markets in Dhaka City. *North American Academic Research*. Vol 4, issue 8 (100-111), 2021 (DOI:10.13140/RG.2.2.18297.90721,)
02. Md. Nazim Uddin and Xiaosheng Wang. Identification of breast cancer subtypes based on gene expression profiles in breast cancer stroma. *Clinical Breast Cancer*, April 2022, (IF is 3.23). <https://doi.org/10.1016/j.clbc.2022.04.001>
03. Jie Wang, Md. Nazim Uddin, Qian Li, Alidan Aierken, Ming-Yuan Li, Rui Wang, Qian-zhi Yan, Dilare Adi, Ming-Tao Gai, and Yun Wu. Identifying Potential Mitochondrial Proteome Signatures Associated with the Pathogenesis of Pulmonary Arterial Hypertension in the Rat Model. *Oxidative Medicine and Cellular Longevity*, 21 February, 2022, Co-first author, (IF is 6.54). <https://doi.org/10.1155/2022/8401924>
04. Md. Nazim Uddin, Xiaosheng Wang, Identification of key tumor stroma-associated transcriptional signatures correlated with survival prognosis and tumor progression in breast cancer. *Breast Cancer*, 12 January, 2022, (IF is 4.24).
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Paper Submitted

01. Md. Zia Uddin Al Mamun, Mohajira Begum, Md. Abdus Satter Miah, Md. Nazim Uddin, Rahima Akter Sathee, Shyama prosed Moulick, Farhana Jahan, Md. Waliullah. Nutritional Analysis of Indigenous Soueces: An Approach to Explore its potential Usage as Alternative Feedstuffs for Thai Koi. Accepted for publication in *Egyptian Jonrual of Aquatic Biology and Fisheries*.
02. Multidrug Resistance of Vancomycin-Resistant *Staphylococcus aureus* (VRSA) from Processed Meat Samples in Dhaka, Bangladesh. Khondaker Wahid Hasan, MeherNigad Nipa, NourinTarannum, Sahana Parveen- *Journal of microbiology, biotechnology and food sciences*.

The image features a central white, rounded rectangular text box containing the text "IMPORTANT EVENTS PHOTO GALLERY" in a bold, dark blue, sans-serif font. This text box is surrounded by a cluster of overlapping, semi-transparent, colorful shapes in shades of pink, orange, red, purple, green, and teal. The background is a light blue gradient with abstract, angular shapes and patterns of small yellow and white dots. The overall design is modern and vibrant.

**IMPORTANT
EVENTS
PHOTO GALLERY**

Stakeholders' Meeting



Army & Navy Training



National Integrity Strategy (NIS) Program



Developed Appropriate Technology Dissemination Program



Others



New Year Celebration



In-house Training



Training on Good Laboratory Practices (GLP)



Training on Good Laboratory Practices (GLP)



Industry Visit



Training on quality control of iodized salt

Training

Training Obtained

01. Annual Performance Agreement (APA); Noitikota o Shudhachar and Nagorik Seba Sonad Course, Name of the trainee: Salma Ahmed PSO, Kanika Mondal PSO (101.03.2021; 23.09.2021, 26.09.2021, 23.12.2021, 29.03.2022; 22.09.2121, 27.09.2021)
02. Md. Zia Uddin Al Mamun obtained an in-house training on “Dumas protein analyzer and rapid fat analyzer” held on 24-28 october,2021 in ITTI, BCSIR, Dhaka.
03. Md. Zia Uddin Al Mamun obtained an in-house training on “HPLC” held on 14-18 november,2021 in IFST, BCSIR, Dhaka.
04. Paroma Arefin, SSO has participated and completed successfully training entitled “Chemical Security Training for Chemical and Pharmaceutical Industry in Bangladesh”, held from 15-17 March 2022, CRDF Global, Dhaka, Bangladesh.
05. Md. Mahfujul Hasan, SSO and Paroma Arefin, SSO have participated and completed successfully training entitled “41st Understanding Course on ISO/IEC 17025:2017”, held from 21-23 June 2022, BAB, Dhaka, Bangladesh.
06. Md. Mahfujul Hasan, SSO has participated and completed successfully training on “Ion Chromatography & Prep-HPLC”, held from 05-09 June 2022, BCSIR Rajshahi Laboratory
07. Md. Mamunur Rashid obtained an in-house training on “Dumas protein analyzer and rapid fat analyzer” held on 24-28 October, 2021 in ITTI, BCSIR, Dhaka.
08. Md. Mamunur Rashid obtained an in-house training on “GC-MS” held on 14-18 February, 2022 in INARS, BCSIR, Dhaka.
09. Maesha Musarrat, SO, participated in the 78th training program of NITUB on the “Use, maintenance and troubleshooting of Gas Chromatography (GC)” held on 27-31 March 2022, at Department of Chemistry, University of Dhaka, Dhaka-1000.
10. Lutfun Naher Hilary, SSO, participated in the in-house training program on “Universal Testing Machine (UTM) and Fourier Transform Infrared Spectrophotometer (FT-IR)” held on 08-12 May, 2022 at LRI, BCSIR, Nayarhat, Savar, Dhaka.
11. Meher Nigad Nipa, SSO, participated in the in-house training on ‘Real Time-Polymerase Chain Reaction (RT-PCR)’ held from 07-11 November, 2021 at Bangladesh Council of Scientific and Industrial Research (BCSIR), Dhaka.
12. Nourin Tarannum, SO, participated in the in-house training on ‘Real Time-Polymerase Chain Reaction (RT-PCR)’ held from 07-11 November, 2021 at Bangladesh Council of Scientific and Industrial Research (BCSIR), Dhaka.
13. Nourin Tarannum, SO, participated in the training on ‘ই-গভর্ন্যান্স ও উদ্ভাবন কর্মপরিকল্পনা বাস্তবায়ন সংক্রান্ত প্রশিক্ষণ কর্মশালা’ held on 30.11.2021 at Bangladesh Council of Scientific and Industrial Research (BCSIR), Dhaka. Analytical and Research Facilities (CARF), BCSIR, Dhaka.
14. Meher Nigad Nipa, SSO, participated in the training on ‘বিসিএসআইআর এ কর্মরত ১ম শ্রেণির কর্মকর্তাদের জাতীয় শুদ্ধাচার কৌশল কর্মপরিকল্পনা ও নাগরিক সেবা সনদ বিষয়ক দিনব্যাপী প্রশিক্ষণ কর্মশালা’ held on 26.09.2021 at Bangladesh Council of Scientific and Industrial Research (BCSIR), Dhaka.

15. Nourin Tarannum, SO, participated in the training on 'Second International Training Course on Industrial Synthetic Biotechnology' held from 21-30 December, 2021 hosted by Tianjin Institute of Industrial Biotechnology (TIB), CAS, China.
16. Nourin Tarannum, SO, participated in the training on 'বিসিএসআইআর এ কর্মরত ১ম শ্রেণির কর্মকর্তাদের জাতীয় শুদ্ধাচার কৌশল কর্মপরিকল্পনা ও নাগরিক সেবা সনদ বিষয়ক দিনব্যাপী প্রশিক্ষণ কর্মশালা' held on 26.09.2021 at Bangladesh Council of Scientific and Industrial Research (BCSIR), Dhaka.
17. Training on "Risk Management for Development Projects" held on October 11-13, 2021, Organized by National Academy for Development Administration (NADA), Bangladesh Planning Commission, General Economics Division, Government of the People's Republic of Bangladesh.
18. Training on "Skill Transformation for Industry 4.0: Application of Artificial Intelligence & Design Thinking" held on April 17-21, 2022, Organized by Bangladesh Institute of Management, Government of the People's Republic of Bangladesh.

Training offered

01. All the Scientists from IFST have trained officials from the Bangladesh Army, NAVY and BFSA in the arena of food science and food safety.
02. Salma Ahmed, PSO, participated as a Trainer on the Training Course on 'Applied Nutrition Research Section' Professional Training on Regulatory and Scientific Requirements for Food Safety Management. (Topics: Nutrition sensitive post-harvest transformation and value addition to agro-processed products; HACCP: Principles and pre-requisites, basic element of HACCP inspection in a manufacturing plant.)
03. Dr Kanika Mitra participate as a trainer on the training program on "LC- MS/MS ". Dated 21-25 November 2021 .
04. Dr Kanika Mitra participate as a trainer on the training program on " Lab Safety ". Dated 21 December 2021.
05. Dr. Abdus Satter Miah, CSO & Director, Mohammad Tariqul Hassan, PSO and Maksuda Begum, SSO have conducted training course as trainer on "Operating and maintenance of HPLC" held on 14-17 November, 2021.
06. Dr. Sharmin Jahan, SSO, IFST, BCSIR was a trainer on "Refresher Training on Quality Control and Quality Assurance System and Laboratory-Based Testing Procedures for Salt Iodization for CIDD Project Personnel and NI Zonal Coordinators" at Conference Room, BSCIC, Chattogram from 09/03/2022 to 14/03/2022 supported by Nutrition International (NI) and conducted by Meat, Poultry and Slaughter House waste Research section, IFST, BCSIR.
07. Dr. Sharmin Jahan, SSO Participated as a trainer of "LAGSOI PROJOKTI MELA" in Doshmina Upazila, Patuakhali district in Bangladesh during 2021-22.

08. Dr. Sharmin Jahan, SSO & Md. Motalab, SSO serve as trainer in training for the entrepreneurs of BSCIC at Khulna and Jessore district under the ongoing ADP project “Augmentation of Technical Competency for Food Product Processing Research of IFST”.
09. Md. Motalab, SSO Participated as a trainer eight “LAGSOI PROJOKTI MELA” in eight different districts in Bangladesh during 2021-22.
10. Md. Motalab, SSO act as an external member of 2nd year (Hons.) Practical final examination-2020, held on 11-12.01.2022, INFS, DU.
11. Md. Motalab, SSO act as an external member of 3rd year (Hons.) Practical final examination-2020, held on 2022, INFS, DU.
12. Meat, Poultry and Slaughter House waste Research section, IFST,BCSIR conducted a training program on “Refresher Training on Quality Control and Quality Assurance” from 09/03/2022 to 14/03/2022 supported by Nutrition International (NI).
13. Rajib Banik, SSO was the trainer on the topic ‘Modern Food Preservation Techniques’ of the training titled ‘Application and importance of modern technologies in food-processing industry’ dated 30 March 2022 at Khulna and 02 April at Joshore.

Participation in meeting/seminar/workshop/ conference/ exhibition and others

Workshop/Program/ Conference/Seminar / Symposium:

01. All the scientist from IFST participated in the “International Conference on Science and Technology for Celebrating the Birth Centenary of Bangabandhu” (ICSTB-2021) 11-13 March, 2021 Dhaka, Bangladesh.
02. Salma Ahmed, PSO attended in the workshop “চতুর্থ শিল্প বিপব চ্যালেঞ্জ মোকাবেলায় আইএফএসটি: করণীয় ও সম্ভাবনা” at IFST, BCSIR on 09.12.2021
03. Salma Ahmed, PSO attended in the process verification meeting at BCSIR as a verification committee member on 08 June 2022.
04. Salma Ahmed, PSO participated in the meetings at BSTI as a member of “Halal Food Product Committee” (29 May 2022; 16 June 2022).
05. Special Allocation Projects evaluated by Salma Ahmed, PSO at Bangladesh Agricultural University, Bangladesh Institute of Nuclear Agriculture (BINA), University of Chittagong, Chittagong University of Engineering and Technology, Trust University Bangladesh, Chittagong. May 2022.
06. Khondaker Wahid Hasan, Nourin Tarannum, Dr. Sahana Parveen gave poster presentation on “Antibiotic resistance pattern in *Escherichia coli* and *Staphylococcus* spp isolated from raw milk, pasteurized milk and milk based beverages of street vendors and grocery shops in Dhaka city” at 35th BSM Conference held on 9th December, 2021.
07. Nourin Tarannum, SO presented a R&D Seminar on Determination of AFM1 from Beverages by ELISA in IFST, BCSIR.
08. Nourin Tarannum, SO worked as a member of ‘৯ম জাতীয় এসএমই পণ্য মেলা ২০২১’ committee, attended the products fair held from 5th-12th December, 2021 and got the best stall award for BCSIR.
09. Meher Nigad Nipa, SSO and Nourin Tarannum, SO attended in the workshop “চতুর্থ শিল্প বিপব চ্যালেঞ্জ মোকাবেলায় আইএফএসটি: করণীয় ও সম্ভাবনা” at IFST, BCSIR on 09.12.2021
10. Dr. Tasnim Farzana, PSO, participated in a meeting on “Sugar and Sugar Industries Products”. Organized by Bangladesh Standard Testing Institute (BSTI).
11. Salma Ahmed, PSO presented a R&D Seminar on Studies on Quality Assessment of the Developed food products to improve the Nutritional status of Geriatric people.

Industrial Visit:

01. In keeping with the APA, we have visited “Karnafuly Fish Meal Ltd, Chattagram” on 16.05.2022 and addressed some of their problems. Moreover, we have provided relevant solutions to the problems so far.
02. Meher Nigad Nipa, SSO and Nourin Tarannum, SO, had visited ‘B-Trac FMCG Ltd.’ Tejgaon Dhaka on 19.05.2022 and Provided relevant solutions to the problems of the industry.

Dissemination of Appropriate Technology:

01. Rajib Banik, SSO has participated in the seminar of “Application and Extension of the Appropriate Technology Developed in the country” and presented lecture on ‘Preservation Technology of food (vegetables) through Solar Drier’ organized by the ministry of Science and Technology and the upazilla administration for the Socio-Economic Development of Bangladesh held in- i) Damurhuda, Chuadanga, ii) Sadar, Magura, iii) Sadar, Barguna, iv) Sundargonj, Gaibandha, v) Kaunia, Rangpur, vi) Nageshwari, Kurigram vii) Kumarkhali, Kustia, viii) Sadar, Panchagarh ix) Rajoir, Madaripur and x) Haimchar, Chandpur.
02. Salma Ahmed, PSO participated in the seminar of “Application and Extension of the appropriate Technology Developed in the Country” and presented a lecture on “Carotene Enrich Noodles” organized by both Ministry of Science and Technology and the Upazila Administration, for the Socio-economic development of Bangladesh, held at (a) Bera, Pabna (18-19 Dec 2021) (b) Tarail, Kishoreganj (23-24 Jan 2022); (c) Shibpur, Narsingdi (20-21 Mar 2022); (d) Bhola (24-25 Mar 2022); (e) Dowarabazar, Sunamganj (30-21 Mar 2022).
03. Md. Hasib Patthan, SO has participated in the seminar of “Application and Extension of the Appropriate Technology Developed in the country” and presented lecture on ‘Preservation Technology of food (vegetables) through Solar Drier’ organized by the ministry of Science and Technology and the upazilla administration for the Socio-Economic Development of Bangladesh held in Gomostapur, Chapainawabganj (26-27 May 2022).
04. Dr. Md. Mahbubar Rahman, PSO participated in the seminar of “Application & Extension of the Appropriate Technology Developed in the Country” and presented a lecture on “Preparation of Malted Weaning Food” organized by both the Ministry of Science and Information and Communication Technology and the Upazilla Administration, for the Socio Economic Development of Bangladesh, held in (a) Panchogor Sadar Upazilla, Panchogor (b) Hathajari Upazilla, Chattagram (c) Gazipur Sadar Upazilla, Gazipur (d) Pirgonj Upazilla, Thakurgaon (e) Dohar Upazilla, Dhaka (f) Khoraghut Upazilla, Dinajpur (g) Bagmara Upazilla, Rajshahi (h) Sadar Upazilla, Joypurhut.

Guidance to Student's Research Work (PhD/M.Phil/M.Sc/MS/NST & BCSIR Fellow):

01. Dr. Mohammad Nazrul Islam Bhuiyan, PSO supervised Farzana Khan, Prediction of Trihalo-methanes in water supply of Chattogram city by empirical models and cancer risk through multi-pathway exposure, PhD, Department of Civil Engineering, Chittagong University of Engineering and Technology, Chittagong, Bangladesh. January, 2020-To date.
02. Dr. Mohammad Nazrul Islam Bhuiyan, PSO supervised Meher Nahid, Minimization of reducing sugar and asparagine content in processing quality potato varieties and acrylamide formation in processed products through fertilizer management, PhD, Department of Agricultural Chemistry, Sher-e- Bangla Agricultural University, Dhaka, Bangladesh. December, 2020-To date.
03. Dr. Mohammad Nazrul Islam Bhuiyan, PSO supervised Munir Ahmed, Analysis of chemical and microbial contaminants in milk and dairy products: A public health concern in Bangladesh-PhD, Department of Zoology, Jahangirnagar University, Savar, Dhaka, Bangladesh. June, 2022-To date.
04. Dr. Mohammad Nazrul Islam Bhuiyan, PSO and Dr. Sadia Afrin, SSO supervised Syed Asif Hasan, Textile dye degradation with microorganisms, MS, Department of Botany, Jagannath University. January, 2022-To date.
05. Dr. Mohammad Nazrul Islam Bhuiyan, PSO and Dr. Sadia Afrin, SSO supervised Masum- UI Hasan, Exploration of probiotic microorganisms from milk and milk based products, MS, Department of Botany, Jagannath University. January, 2022-To date.
06. Dr. Mohammad Nazrul Islam Bhuiyan, PSO and Dr. Sadia Afrin, SSO supervised Ha meem, Isolation, characterization and potential evaluation of antibiotic producing microorganisms from soil sample, MS, Department of Botany, University of Dhaka. January, 2022-To date.
06. Dr. Mohammad Nazrul Islam Bhuiyan, PSO and Dr. Sadia Afrin, SSO supervised Farhana Urmi, Isolation and characterization of potential pigment producing microorganism and their biotechnological application, MS, Department of Botany, University of Dhaka. January, 2022-To date.
07. Salma Ahmed, PSO supervised M.Sc. Thesis of one student of Department of Biochemistry and Molecular Biology, Jahangir Nagar University, Savar, Dhaka
08. Md. Zia Uddin Al Mamun, SO supervised , M.Sc. thesis of Tamanna Haque who worked on Biochemical Composition of some Commercially Important Brachyuran Crabs of Bangladesh. Department of Zoology, University of Dhaka, September, 2021- April, 2022
09. Dr. Sahana Parveen, CSO Supervised Khondaker Wahid Hasan, Dr. Abdullah Al Muti Sara-fuddin Smriti Fellow Antibiotic resistance pattern in *Escherichia coli* and *Staphylococcus spp* isolated from raw milk pasteurized milk and milk based beverages of street vendors and grocery shops in Dhaka city. Department of Microbiology, Stamford University. From 18th June 2020 to 18th June 2021

10. Meher Nigad Nipa, SSO Supervised Rathee Biswas, MS thesis student- Isolation, Identification and antibiotic profiling of different organisms in fresh fruit juice found in streets of Dhaka district, Jessore University of Science and Technology, July-December, 2021
11. Meher Nigad Nipa, SSO Supervised Ayan Goshawami, MS thesis student- Isolation and Identification of E.coli 0157:H7 from vegetable samples University of Dhaka, March, 2022- ongoing
12. Meher Nigad Nipa, SSO Supervised Suprova Islam, MS thesis student-Isolation and Identification of E.coli 0157:H7 from raw meat samples Jogonnath University March,2022- ongoing
13. Nourin Tarannum, SO Supervised Minhaj Islam, Mini project, Isolation and Identification of *Aeromonas* spp. from waste water samples, Department of Microbiology, University of Dhaka, November-December, 2021
14. Mohammad Tariqul Hassan, PSO and Maksuda Begum, SSO have completed supervision as Co-supervisors of M.Sc. thesis work of Sangita, Department of Zoology, University of Dhaka.
15. Dr. Sharmin jahan, SSO & Md. Motalab, SSO, Co-supervised of Dr.Parisa Chowdhury, MPH in Epidemiology, Department of Public Health and Informatics Bangabandhu Sheikh Mujib Medical University. Thesis title "Determination of health-compromising ingredients in pickles available in the markets of Dhaka city, Bangladesh".
16. Dr. Tasnim Farzana, PSO supervised Ph.D thesis of Mr. Md. Tazul Islam, Ph.D thesis (ID FN-PH-1901) student of Mawlana Bhashani Science and Technology University, Santosh, Tangail-1902.
17. Dr. Tasnim Farzana, PSO supervised MSc thesis of Jannatul Ferdous Sumaiya, student of Food and Nutrition, College of Home Economics, Dhaka.
18. Dr. Tasnim Farzana, PSO supervised MSc thesis of Rokaiya Akhter, student of Food and Nutrition, College of Home Economics, Dhaka.
19. Rajib Banik, SSO guiding as the co-supervisor of the MS thesis of Tamanna Sultana, Session: 2018-19, Dept. of Biotechnology & Genetic Engineering, Jahangirnagar University, Savar, Dhaka.

Scientists pursuing Ph.D Degree:

1. Robel Hossain Patwari, Senior Scientific Officer, pursuing his PhD research, in University of Sheffield, England.
2. Suvra Das, Senior Scientific Officer, pursuing her PhD research, in University of Queensland, Australia.

Any other contribution/ information:

1. Dr. Sharmin Jahan, SSO serves as Project Director of an ADP project "Augmentation of Technical Competency for Food Product Processing Research of IFST"
2. Dr. Sharmin Jahan, SSO serves as a committee member of "Fruits, vegetable and their derived products" section, Bangladesh Standard Testing Institute (BSTI).
3. Md. Motalab, SSO acts as an alternative focal point of BCSIR for Second National Plan of Action for Nutrition (NPAN2) and attended the three meetings during 2021-22.

The image features a central white speech bubble containing the text 'INFORMATION ON PATENTS, DEVELOPED PROCESSES & LEASED OUT'. This bubble is surrounded by several overlapping, semi-transparent shapes in various colors including pink, orange, red, purple, green, and teal. The background is a light blue gradient with abstract geometric patterns and clusters of small yellow and white dots.

**INFORMATION ON PATENTS,
DEVELOPED PROCESSES &
LEASED OUT**

Annual Report 2021-2022



List of Total Processes in Commercial Production

Name of Process	Name of the Entrepreneur
1. A Process for the Production of high Protein Biscuits (Soya Protein Biscuit)	M/S Shilpee Food Product Ltd. Dhanmondi, Dhaka
2. A Process for the Production of High Protein Bread "Milk Soya Bread"	M/S Shilpee Food Product Ltd. Dhanmondi, Dhaka
3. A process for the production of spirulina bread	Kanushka Food Product Ltd.
4. Development of a process for the production of Instant Sweetmeat Powder	M/S Matador Food and Allied Industries
5. Development of a Process For the Production of Sandesh for diabetic patients	Rash Bohumukhi Farm Ltd., Dhanmondi, Dhaka
6. A Process for the Production of Jack fruit Biscuit	M/S Pearl Food Products
7. Development of a process for the production of Sponge Rashgollah	Rash Bohumukhi Farm Ltd., Dhanmondi, Dhaka
8. A Process for the Production of Mango Pickles	M/S. Ara Food, Dhaka
9. Processing and Preservation of Tomato Ketchup	M/S. Ara Food, Dhaka
10. Processing and Preservation of Jackfruit Juice	M/S.Pearl Food, Dhaka
11. Processing and Preservation of Tamarind Juice	M/S. Ara Food, Dhaka
12. Processing and Preservation of Sugarcane Juice	M/S. Medico Lab, Dhaka
13. Production of Instant Tasty Spirulina Drink	i. M/S. Walico Harbs, Dhaka ii. M/S.Greenstake & Green House, Dhaka
14. Processing and Preservation of Zinseng Energy Drink	M/S. Sneha Food, Dhaka
15. Processing and Preservation of Vegetable Nutri-Diet	M/S. Exim Agro Food, Dhaka
16. Processing and Preservation of Fruity Saline	M/S. Exim Agro Food, Dhaka
17. Processing and Preservation of Salt based Oral Saline	i. M/S. Rajdhani Homeo Lab, Dhaka; ii. M/S. Ultra fresh, Dhaka iii. M/S.Dhaka Food. Dhaka; iv. M/S. BUDS Bangladesh, Dhaka v. M/S. Sahera Foal, Dhaka; vi. M/S. Ducfa & Co., Dhaka
18. Processing and Preservation of Orange Oral Saline	M/S. Elite Food Corporation, Dhaka
19. Production of Tasty Saline	M/S. Elite Food Corporation, Dhaka
20. Processing of Peeled Coconuts as Green by Using MAP (Modified Atmosphere Pressure)	M/S. Zebisco food products, Dhaka
21. Production of Istant Fruity Saline (Orange Flavoured)	M/S. Exim Agro Food, Dhaka
22. Production of Istant Fruity Saline (mango flavoured)	M/S. Exim Agro Food, Dhaka
23. Production of Mixed Vegetable Sauce	M/S. BSP Food Products (Pvt) Ltd
24. Production of Oral Saline	M/S Elite Food Corporation, Dhaka

Name of Process	Name of the Entrepreneur
25. Production of Herbal Energy Tablets	i. M/S. Walico Harbs, Dhaka; ii. MIS.Prince Pharma., Khulna; iii. Indo-Bangla pharma. Works, Barishal
26. Production of Pineapple Squash	M/S. Nahar Garde
27. Production of Tomato Ketchup	M/S. Nahar Gardenn
28. Production of Tomato Sauce	M/S. Nahar Garden
29. Production of Tasty Energy Drink	M/S. Essential Food Products, Bogra
30. Carotene Enriched Instant Noodles	M/S BSP Entrepreneur BSP Food Products (Pvt.) Ltd. BSP Trading, BSCIC IEK, Chittagong.
31. Process for the Production of Rice Based Oral Saline	General Pharmaceuticals
32. Production of processed Chirata in capsule form	i. M/S. Nabin Laboratories (Food Divn.), 33/3, Golapbagh, Dhaka ii. MIS. Parent Pharmaceutical, 394/A, West Nakhal Para, Tejgaon, Dhaka iii. M/S. Herbochemi Laboratories Ltd. Plot: BSCIC Ind. Area, Rajbari iv. MIS. Star Food & Chemicals, 16-IG gate, Sutrapur, Faridabad. Dhaka. v. M/S. Bexter (ayu) Laboratories, Shibbati, Rangpur Road, Bogra. vi. MIS. Prince Pharmaceutical (herbal) Industries Char Rupsha Bagman, Rupsha, Khulna.
33. Process for the Production of Vitamin, Mineral	MIS. Excel Agri-Food Company, 133, Nagariaban, Dakkhin Khan, Liters, Dhaka
34. Production of high potency Nutraceutical (food supplement) Capsule	i. M/S Biogene Pharma Ltd. 46/2 (3rd Floor), Dhanmondi, Dhaka ii. M/S. Nabin Laboratories (food Divn.) 33/3, North Golapbagh, Dhaka-1203
35. A small Scale Reining of Sunflower Oil	Amnia oil & Food Products Ltd. Amrita Nagar, Babuganj, Barisal
36. Production of Vegetable Ghee	BSP Food products Pvt. Ltd. 54, BISCIC Industrial area Kalurghat, Chittagong
37. Production of Onion Paste	Omni loads ltd. C.A. Bhaban (2nd Floor) 100 Kazi Nazrul Islam Avenue, Karwanbazar, Dhaka
38. Production of Garlic Paste	Omni loads ltd. C.A. Bhaban (2nd Floor) 100 Kazi Nazrul Islam Avenue, Karwanbazar, Dhaka
39. Production of Taltex (for jute and textile fibre)	M/S Chandana Trading Company, 347 New Elephant Road, Dhaka-1205
40. Production of Tasty Energy Drink	i. M/S ABM Food & Consumer Products, 21/B, Jatraban, Dhaka. ii. M/S Unibrid Food & Chemicals. Paity, Demra, Dhaka. iii. Brothers Food & Chemicals, Ataikula Road, Shalgaria, Pabna. iv. Rare Food & Chemicals Ltd, House # 37, Lane If 01, Shahi bazaar, Page, Fatale, narayangonj. v. M/S Unifrade Food & Chemical Indusnes, 161/7, Began ban, Vashantak, Mirpur, Dhaka. vi. M/S Universon Food , Bangora Bazar, Nabinagar, B.Barria. vii. M/S Uro Food, 101 North Goren, Gini House, Dhaka.
41. Production of Herbal Anti- Diabetic Tea	i. M/S Chinese Botany Food Laboratiry, Azma Complex (1st Floor) ii. ewanhat moor, Post Bandar, Ps- double Mooring, Chittagong iii. M/S Popular Health Care, 91 New Elephant Road, Dhaka. iv. M/S Brothers Food & Chemicals, Ataikula Road, Shalgaria, Pabna. v. M/S. UK Health Care Laboratories (Ayurvedic) Sakider Pharmacy Sreenagar Bazar, College Road, Munshigonj. vi. M/S NSN Natural Drugs, R-4, Section-6, Block-A, (2nd Floor), South Murpur, Dhaka
42. Production of Herbal Energy Tablet	M/S Organic Natural Foods & Nutrition Kazi Medical Centre, Kachua, Chandpur
43. Preparation of Slightly Acid Hypochlorous Solution (SAHS)\ based disinfectant for different purposes.	Anshin Bangladesh, Tejgaon, Dhaka.

Total Process Leased Out

Name of Process	Name of the Entrepreneur
1. A process for the Production of Artificial milk	M/s Shilpee Food Product Ltd. Dhanmondi, Dha
2. A process for the Production of Diabetic Sweetmeat	M/s Allauddin Sweetmeat Ltd. Dhakaka
3. A process for the Production of Blood Meal	Mangrove Fish Ptv. Ltd., Shatkhira
4. A process for the Production of Long Life Bread	Alco Food Ptv Ltd.
5. A process for the Production of low cost Weaning Food	M/s Sanj (Bangladesh) & Kamal Food Products Ltd.
6. A process for the Production of instant Chicken Soup Powd	M/s Just Born Ptv. Ltd, Dhaka
7. A process for the Production of "Made Tea"	Bangladesh Food Development Industries, Dhaka
8. A process for the Production of Condensed milk	BMF Trading Company, Mohammadpur, Dhaka
9. A process for the Production of Protein Rich Soup Powder	M/s Ideal Consumer Produc
10. Development of a Process for the production of high protein supplementary food from Corn and Soybean	Grameen Krishi Foundation, Mirpur, Dhaka
11. A Process for the Production of Soya Bread for diabetic patient	M/s Shorr Food & Bakery Ltd., New Bailey Road, Dhaka
12. Carotene enriched Instant Noodles	Protina Home Made, 8/11, Kha. Dir Sayed Road, Mohammadpur, Dhaka-1207
13. Production of Ideal Atta for diabetic patients	i. M/S, M.B, Food Products Bangladesh House No.: A/16, Road No: 12, Housing Estate, Khalishpur, Khulna. ii. Alif Beverage House No.: 13/A, Road No.: 3, Dhanmondi R/A, Dhaka. iii. M/S, P.L. International, 583/C, Malibag, Chowdhuripara, Dhaka-1217 iv. M/S, Mahin Food Industries (Pvt.) Limited, Razzak Tower, Suite 3 (4th floor), 5, Purana Paltan, Dhaka-1000 v. M/S Mamun Agro Products Limimited 48, Dhanmondi, Dhaka
14. Preparation of Malted Weaning Food	i. M/S, Important Products Bangladesh 98/2, Katlapur, Savar, Dhaka. ii. Nabin Laboratories (Food Division) 33/3, North Golapbag Dhaka-1203. iii. Modern Herbal Group, 2, Shahid Tajuddin Sarani, Rhine Razzak Plaza, Moghbazar, Dhaka
15. A Process for the Production of Fermented	M/S Advancement program for rootless people (APRP), House # 7, Road # vinegar from date palm juice 17, Block # C, Banani, Dhaka
16. Production of vinegar from Cane Sugar Cake molasses (Gur) by fermentation	Dr. Alamgir Mati, 2, Sahid Tajuddin Sarani, Rine Rajak Plaza, Moghbazar, Dhaka-1217
17. Process for the Production of vitamin and protein enriched low cost Cereal Food	M/S Samar Agro Complex Ltd. 78, Kazi Nazrul Islam Avenue (2nd Floor), Farmgate, Dhaka-1215
18. Production of Processed chirata in capsule form	i. MS. Seacom Pharma, 70, North Road (2nd floor), Dhanmondi. Dhaka ii. MS Holy life Pharma, Group of HL (BD) Ltd. House no. 41, Road No. 13, Sector-3, Uttara, Dhaka
19. Process for the Production of Hi-protein naturalstyle bread spread	M/S. Nabin Laboratories (Food Divn.) 33/3, North Golapbagh, Dhaka-1203
20. Production of Bashak-Ginger Blended Tea	M/S. Nabin Laboratories (Food Divn.), 33/3, North Golapbagh, Dhaka
21. Production of blended tea from Neem-Haritaki and Ginseng	M/S. Nabin Laboratories (Food Divn.), 33/3, North Golapbagh, Dhaka-1203
22. Production of Bashak-Haritaki Blended Tea	M/S. Nabin Laboratories (Food Divn.), 33/3, North Golapbagh, Dhaka-1203

Name of Process	Name of the Entrepreneur
23. Production of Pipul-Haritaki blended tea	M/S. Nabin Laboratories (Food Divn.), 33/3, North Golapbagh, Dhaka
24. Production of Haritaki-Methi blended tea	M/S Nabin Laboratories (Food Divn.), 33/3, North Golapbagh, Dhaka-1203
25. Production of Amlaki and Senna mixed tea	M/S. Nabin Laboratories (Food Divn.), 33/3, North Golapbagh, Dhaka-1203
26. Development of Kit-Box to estimate Iodine in the Iodised salt by paper strip	UNICEF
27. A process for the Production of long life Iodine Testing Solution to detect Iodine in the Iodised salt	UNICEF
28. Production of Dehydrated White Potato	Chowdhury Fridging Co.. Hasanabad, Dhaka
29. Production of Dehydrated Garlic Flake	M/S Ranu Sons, 276 Gulbagh, Dhaka
30. Production of Dehydrated Potato	M/S Samarat Fakehat Trading, 128 Chandanapur, Chittagong
31. Production of Dehydrated Tomato	i. M/S Smarat Fakehat Trading, 128, Chandanapur, Chittagong ii. M/S United Enterprise, 478/3, Toienby circular Road, Dhaka
32. Production of Dehydrated Flat Bean	M/S Samarat Fakehat Trading, 128 Chandanapur, Chittagong
33. Production of Dehydrated Cabbage	M/S Samarat Fakehat Trading, 128 Chandanapur, Chittagong
34. Production of Dehydrated Cauliflower	M/S Samarat Fakehat Trading, 128 Chandanapur, Chittagong
35. Production of Dehydrated Pineapple	M/S Samarat Fakehat Trading, 128 Chandanapur, Chittagong
36. Production of Carbonated Mango Juice	M/S Tabani Beverage Co. Ltd. 257 Tejgao Dhaka
37. Production of Carbonated Pineapple Juice	M/S Tabani Beverage Co. Ltd. 257 Tejgao Dhaka
38. Production of Carbonated Tomato Juice	M/S Tabani Beverage Co. Ltd. 257 Tejgao Dhaka
39. Production of Carbonated Soft Drink, Shanti	M/S Choudhury Agency, 29/1 Prosonno Poddar lane, Nayabazar, Dhaka
40. Production of Garlic Powder for Garlic Capsule	Galaxi Exporters, C/o, Bangladesh Tax Advisor, 81/2 Kakrile, Dhaka
41. Production of Non Carbonated Orange Drink	M/S Shefa Enterprise, 211 South Pike pars, Morpur, Dhaka
42. Production of Pineapple Juice in Glass Bottle	M/S Dilcon Enterprise, 357/10, Modhubaht, Nayatola, Dhaka
43. Production of Mango Juice in Glass Bottle	M/S Dilcon Enterprise, 357/10, Modhubaht, Nayatola, Dhaka
44. Production of Instant Mash Potato	M/S Dilcon Enterprise, 357/10, Modhubaht, Nayatola, Dhaka
45. Production of Soft Drink Powder, Monovita	M/S Bangladesh Food Development Ind., 21/62 Rupnagar, Mirpur, Dhaka
46. Production of Tender Coconut Water in glass bottle	i. M/S Mohammadi Group of company Ltd, Motijhil, Dhaka ii. M/S Alif Food Products, House 42, Road 2/A 3rd Flr.. Dhanmondi, Dhaka
47. Production of Ginger Paste	i. Bismillah Traders, 226 North Shajahanpur. Dhaka-1217 ii. Omni Foods Ltd. CA Bhaban 2nd floor, Karwanbazar, Dhaka
48. Production of Garlic Paste	i. Bismillah Traders, 226 North Shajahanpur, Dhaka-1217 ii. Omni Foods Ltd. CA Bhaban 2nd Floor, Karwanbazar, Dhaka
49. Production of Mixed spices powder for beef rezala	Omni Food Ltd. C.A. Bhaban 2nd Floor, Karwanbazar, Dhaka
50. Production of Mixed spices powder for mutton curry	i. Green Trade House 16 Bally Road, Ground Floor, Dhaka ii. Omni Foods Ltd. C.A. Bhaban 2nd Floor. , Karwanbazar. Dhaka
51. Production of Mixed spices powder for fish curry	i. Green Trade House 16 Bally Road, Ground Floor, Dhaka ii. Omni Foods Ltd. C.A. Bhaban 2nd Floor. , Karwanbazar. Dhaka
52. Production of Fruit and vegetable wash Concentrate (Commercial name CleanAVa)	Purnava Limited (A Renata Concern), Dhaka
53. Preparation of Slightly Acid Hypochlorous Solution (SAHS)\ based disinfectant for different purposes.	Anshin Bangladesh, Tejgaon, Dhaka.
54. Preparation of Sugarcane Lemon Drink	M/S Ripco Limited, 136, Jalalabad, Ward No-2, Byjid Bostami Road, Chattogram.

Name of Process	Name of the entrepreneur
52. Production of Onion Paste	Omni Foods Ltd. C.A. Bhaban 2nd Floor, Karwanbazar, Dhaka
53. Production of Mixed spices powder for chicken korma	Omni Foods Ltd. C.A. Bhaban 2nd Floor, Karwanbazar, Dhaka
54. Production of processed chirata in capsule form.	i. M/S. Seacom Pharma, 70, North Road (2nd Floor). Dhanmondi, Dhaka. ii. M/S. Holy life Pharma. Group of HL (BD) Ltd. House 41, Sector-3, Uttara, Dhaka
55. Process for the Production of Vitamin, Mineral and protein enriched wheat flour	M/S. Excel Agri-Food Company, 133, Nagariabari, Dakkhin Khan, Uttara, Dhaka.
56. Production of High Potency Nutraceutical (food supplement) capsule	i. M/S. Biogene Pharma Ltd.. 86/2 (3rd Floor), West Dhanmondi, Dhaka. ii. M/S. Nabin Laboratories (Food Divn.), 33/3, Rampura, WABDHA Road, Dhaka
57. Production of Ginger Cola	Speed Food and Beverage Ltd. House # 47, Road # 12/A, Dhanmondi, Dhaka
58. Production of Low Cost Nutritious Easily Digestible Baby Food	M/S. Inova Health Care Ltd. 52/7/1, West Raja Bazar, Dhaka
59. Production of Mixed Vegetable Sauce	M/S B. S R Food Products (Pvt.) Ltd., BCSIC Industrial Area, Kalurghat, Chittagong.
60. Production of Tasty Energy Drink	M/S Essential Food Products, Sakal Bazar, Sherpur, Bogra.
61. Production of Herbal Energy Tablet	M/S Walico, Herbs, 247, Sultangonj, Rayer Bazar, Dhaka-1209.
62. Production of Herbal Energy Tablet	M/S Medifare corporation, Plot-11, Block-B, Dhaka Real State, Basila Road, Dhaka.
63. Production of Herbal Energy Tablet	M/S Holy Life Pharma. House NoAll, R-13, Section-3, Uttara, Dhaka.
64. Process for the Production of Vitamin and Protein Enriched Low Cost cereal food	M/S Inova Health Care Ltd., 52/7/1 West Raja Bazar, Dhaka.
65. Production of Processed chirata in capsule form	M/S Seacom pharma, 70, North Road (2nd Floor) Dhanmondi, Dhaka.
66. Production of High Potency Nutraceutical (Food Supplement) capsule.	M/S Holy life pharma, Group of HL (BD) Ltd., 41, Road No. 13, Sector-3, Uttara, Dhaka.
67. Ginger Blended tea.	M/S NSN Natural Drugs, Road 31, House 465, New DOHS, Mohakhali, Dhaka.
68. Production of Blended tea from Neem-Haritaki and Ginseng	M/S M.M. Pharma, 653/A Baro Moghbazar, Jhabox Lane, Gabtola, Dhaka-1227.
69. Production of Bashak - Haritaki Blended tea.	M/S Nabin Laboratories (Food Division), 33/3 North Golapbagh, Dhaka-1203.
70. Production of Pipul - Haritaki Blended tea.	M/S Nabin Laboratories (Food Division), 33/3 North Golapbagh, Dhaka-1203.
71. Production of Haritaki - Methi Blended tea.	M/S Nabin Laboratories (Food Division), 33/3 North Golapbagh, Dhaka-1203.
72. Production of Amlaki and Senna Mixed tea.	M/S Nabin Laboratories (Food Division), 33/3 North Golapbagh, Dhaka-1203.
73. Production of coral complex as calcium supplement.	M/S Nabin Laboratories (Food Division), 33/3 North Golapbagh, Dhaka-1203.
74. Production of vinegar from Cane Dugar Cake Molasses (Gur) by Fermentation	M/S Nabin Laboratories (Food Division). 33/3 North Golapbagh, Dhaka-1203.
75. Preparation of Malted Weaning Food	M/S. Biogene Pharma Ltd., 86/2 (3rd Floor), West Dhanmondi, Dhaka.
76. Production of Low cost Nutritious Easily Digestible Baby Food.	Modern Herbal Group Rine Razzak Plaza, Moghbazar Dhaka
77. Production of Tasty Energy Drink.	M/s. Modern Herbal Group, 2- Shahid Tajuuddin Sharani, Rine Razzak Plaza, Moghbazar, Dhaka.
78. Production of Herbal Anti- Diabetic Tea	M/s, Nabin 33/3, Uttar Golapbagh, Dhaka.
79. Production of Herbal Energy Tablet	Renova Health Care Ltd.
80. Production of Coral Complex as calcium supplement	M/s Organic Natural Foods & Nutrition Kazi Medical Centre, Kachua, Chandpur
81. Production of Vegetable Ghee	Gulzar Food Products, 637/757, DC Road, Chawkbazar, Chittagong.
82. Production of High Protein Atta.	Benison Food Product Limited Kasimpur, Gazipur

Processes ready for lease out

1. A process for the production of jackfruit toffee
2. A process for the production of dehydrated Tejpata
3. A process for the production of mixed spices for mustard hilsha
4. A process for the production of mixed spices for fish curry
5. A process for the production of mixed spices for beef bhuna
6. A process for the production of mixed spices for chicken roast
7. A process for the production of mixed spices for mutton korma
8. A process for the production of mixed spices for marinated chicken fry
9. A process for the production of mixed spices for mutton curry
10. A process for the production of lemon cola
11. A process for the production of dehydrated onion slice
12. A process for the production of pineapple candy
13. A process for the production of potato chips (for frying)
14. A process for the production of Soya Nugget
15. A process for the production of Laban
16. A process for the production of carotene rich noodles
17. A process for the production of lactic acid from sugar cane molasses
18. A process for the production of butanol from molasses
19. A process for the production of acetone from molasses
20. A process for the production of citric acid from sugar cane molasses
21. A process for the production of oxalic acid from molasses
22. A process for the production of citric acid from raw sugar fermentation
23. A process for the production of Baker's yeast from molasses in semi-pilot plant scale
24. A process for the production of citric acid from cane molasses by fermentation
25. A process for the production of soy sauce by the fermentation of soybean and wheat
26. A process for the production of various flavored yoghurt drink by fermentation
27. A process for the production of Crispy Powder
28. Production of Instant High protein Pakora mix
29. Production of ready to eat traditional rooti chapatti
30. Processing and preservation of pineapple juice
31. Processing and preservation of Carambola
32. Processing and preservation of pineapples slices in syrup
33. Production of Chalta Juice
34. Production of Preserved Jack Fruit Bulbs in Syrup
35. Production of Wood Apple (Bael) Juice
36. Production of Bitter Gourd (Karala) Juice
37. Production of Chili Sauce
38. Production of Cabbage Sauce
39. Production of Mushroom Juice
40. Production of sweet-sour chalta sauce
41. Development of a process for the preparation of pure drinking water (Piash)
42. Production of Sugarcane-Lemon Juice
43. Preparation of blood meal, a protein concentrated for making poultry feed
44. A process for canning of Chapila fish
45. A process for the production of salted beef

46. A process for the production of fish finger
47. A process for the production of fish kabab
48. A process for the production of fish cutlet
49. A process for the production of fish ball
50. A process for the production of frozen beef burger steak
51. A process for the production of instant chicken kabab mix
52. A process for the production of instant beef keema. porota
53. A process for the production of Hilsha fish oil capsule
54. A process for the production of Formalin detection kit in food
55. Production of instant chicken-prawn-vegetable soup mix
56. Production of Formalin detection solution for milk.
57. A process for the production of Green Peeling Coconut
58. A process for the production of Dried Jute Leaf Powder
59. A process for the production of Mustard Sauce
60. A process for the production of Mustard Paste
61. Production of Leaf Protein Concentrate (LPC)
62. A process for the production of Poultry Feed for Starter & Growers
63. A process for the production of mushroom biscuit
64. A process for the production of mushroom cake
65. Production of ready mix idli from rice and pulse by mixed fermentation
66. A process for the production of Ispagula Idli from parboiled rice. Bengal gram and Ispagula Husk
67. Production of fermented cereal
68. A process for the production of fermented biscuit
69. A process for the production of Pineapple Candy
70. Production of Bashak -Ginger Blendrd tea.
71. Production of Blended tea from Neem-Haritaki and Ginseng
72. Production of Bashak-Haritaki Blended tea.
73. Production of Pipul-Haritaki Blended tea.
74. Production of Haritaki-Methi Blended tea.
75. Production of Amlaki and Senna Mixed tea.
76. Production of Mushroom Juice.
77. Production of Nutri-Mixed Seed Bar
78. Production of Nut Bar
79. Production of Sweet Sour Chalta Sauce.
80. Production of low cost nutritious easily digestible baby food.
81. Production of Sweet Mushroom Biscuit.
82. A process for the Production of dehydrated bitter gourd.
83. Production of carbonated pineapple juice from fresh pineapple.
84. Production of assorted instant rice porridge
85. Production of Red Hot Tomato Candy
86. Production of fortified instant semolina (suji)
87. A process for the production of Carotene-Lycopene enriched Soup Mix.
88. Formulation of banana flavour
89. Production of stevioside from Stevia dry leaf
90. Production of Cereal based fortifier for Young Children (Six months to five years).
91. Production of Cereal based fortifier for Young Children (Five to nine years)
92. A process for the production of Straw berry Juice Drink.

Total Process Patented

SL.	Name of the Patent	Patent no. & Year
1.	A Process for the Production of 'Meat Meal' from meat offals	1000010;1969
2.	A Pprocess for Preparing Blood Meal from Slaughterhouse Wastes for Feeding Poultry	1000021;1972
3.	Process for the Preparation of Meal from Slaughter House Wastes for Feeding Poultry	1000020;1972
4.	Process for the Production and Preparation of Poultry feeds for layers from Indigenous Raw materials	1000483;1973
5.	A process for the production of rennet enzyme from the stomach of young animals	1000237;1973
6.	Process for the formulation and preparation of poultry feeds for starters using indigenous raw materials	1000492;1973
7.	A Process for the production of bland flavoured and debittered full fat soyflour	1000633;-1974
8.	A Process for the production of artificial milk from soybean	1000639;11975
9.	A Process for the production of dextran from commercial sucrose by fermentation	100 0327;1975
10.	A Process for the production of citric acid from raw sugar by fermentation	1000361; 1975
11.	A Process for the production of citric acid from cane molasses by fermentation	1001252; 1980
12.	A Process for canning of <i>Chapila Gadusa</i> Chapra (Ham) fish	1000823; 1984
13.	Manufacture of Bleaching Earth from Bijoypur clay	1001921; 1985
14.	Development of a Process for Refining of Cottonseed oil	1001929; 1985
15.	A Process for the production of instant tea	1000985; 1985
16.	A Process for Enhancig the Filling power of Chicken Feather for Use in Sleeping Bags and Pillows	1001818; 1986
17.	Development of a Process for the production of malted barley flour	1001821; 1986
18.	Development of a Process for the production of soyaspread	1001826; 1986
19.	A Process for the long life iodine testing solution to detect iodised salt	1003287; 2001
20.	Production of Instant Sweetmeat Powder	1003642; 2001
21.	Production of Instant Protein Rich Soup Powder	1003742; 2001
22.	A Small Scale Refining of Sunflower oil	1003493; 2002
23.	Development of a Process for the Production of glace Jackfruit	1003055; 2003
24.	A Process for the Production of Meat floss from Beef meat	1004330; 2004
25.	A Process for the Production of Meat dice from Beef meat	1004341;12004
26.	Production of Soy chunk	1004422; 2004
27.	Production of Instant High Protein Pakora mix	1004445; 2005
28.	Production of Ginger Cola in glass bottle	1004425; 2006
29.	An Improved Process for the Production of Cured Beef	1004821; 2008
30.	A Process for the Preparation of Malted Weaning Food	100504; 2010

The image features a central white speech bubble containing the text "OFFICIALS' INFORMATION" in bold, dark blue, sans-serif capital letters. The bubble is surrounded by a cluster of overlapping, semi-transparent shapes in various colors including pink, orange, red, purple, green, and teal. The background is a light blue gradient with abstract geometric patterns and several halftone dot patterns in yellow and light blue. The overall style is modern and vibrant.

**OFFICIALS'
INFORMATION**

Annual Report 2021-2022



Name of the Directors and Duration

Sl.NO.	Name	Duration	
01.	Dr. S.F. Rubbi (Project)	10.07.1982	01.06.1985
02.	Dr. S.F. Rubbi	02.06.1985	29.12.1987
03.	Dr. N.M. Khan	30.12.1987	29.03.1989
04.	Dr. Aazi AKM Nurul Haque	30.03.1989	29.01.1991
05.	Dr. M. Abdur Rahman	30.01.1991	30.07.1994
06.	Dr. Md. Waliuzzaman	31.07.1994	25.02.1995
07.	Dr. M. Muslemuddin	26.02.1995	31.12.1995
08.	Dr. M. Sattar Ali	01.01.1996	21.10.1999
09.	Dr. A.J.M. Omar Faruque	22.10.1999	30.10.2000
10.	Dr. M. Kabirullah	31.10.2000	29.11.2000
11.	Dr. A.M. Hasan Rashid Khan	30.11.2000	13.06.2001
12.	Dr. M. Zahirul Haque Bhuiyan	14.06.2001	28.12.2004
13.	Mr. Golam Kibria	29.12.2004	18.09.2005
14.	Dr. Mujibur Rahman	19.09.2005	31.01.2006
15.	Dr. M. Zahirul Haque Bhuiyan	01.02.2006	19.11.2006
16.	Dr. K.M. Formuzul Haque	20.11.2006	31.12.2007
17.	Ms. Fahima Roksana	01.01.2008	31.12.2008
18.	Dr. Mamtaz Dawlatana	01.01.2009	17.08.2010
19.	Ms. Majeda Begum	18.08.2010	31.03.2012
20.	Ms. Ferdusi Begum	01.04.2012	14.04.2012
21.	Mr. Mainul Ahsan	15.04.2012	04.12.2013
22.	Ms. Ferdousi Begum	05.12.2013	23.02.2014
23.	Dr. Md. Zahurul Haque	24.02.2014	02.07.2018
24.	Dr. Barun Kanti Saha	03.07.2018	16.12.2019
25.	Dr. Md. Abdus Satter Miah	17.12.2019	—

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Details of the scientists

Name	Designation	Subject/ Field of Specialization	E-mail	Mobile No.
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Md. Abdus Sabur	SO	Material Science & Engineering	sabur37971@gmail.com	01773773373

Name of the Technical Officers & Staff with Designation

Sl.NO.	Name	Designation
01.	Mrs. Akter Nahar	EO
02.	Rahima Begum	Assistant Administration Office
03.	Md. Nur Mohammad	Senior Technician
04.	AK Arzu Mia	Senior Technician
05.	Abul Hasnat Khan	Senior Technician
06.	Md. Rezaul Islam	Technician
07.	Md. Abdul Khaleq	Technician
08.	Oliul Islam	Technician
09.	Md. Abdul Mannan	Technician
10.	Shamsun Nahar	Junior Technician
11.	Sadia Rahman Shetu	Junior Technician
12.	Md. Abdur Razzak	Junior Technician
13.	Abdul Sobahan Akon	Junior Technician
14.	Sanjiv Pal	Junior Technician
15.	Md. Rizvi Ahmed	Junior Technician
16.	Md. Risul Islam Russell	Junior Technician
17.	Nazmun Nahar	Junior Technician
18.	Nadira Akter Suchi	Junior Technician
19.	Md. Abu Hanif	Junior Technician
20.	Md. Sahidul Islam	Sr. Lab. Attendant
21.	Md. Anwar Hossain	Sr. P. P. Attendant
22.	MD. Hanif Mia	Refrigerator Technician
23.	MD. Shawkat Ali	Lab. Attendant
24.	Jannatul Ferdous	Lab. Attendant
25.	ABM Shahjalal	Lab. Attendant
26.	Kawsar Ali	Lab. Attendant
27.	Md. Monir Hossain	Lab. Attendant
28.	Maqshud Alam	MLSS
29.	Bethe Akhter	MLSS
30.	Mrs. Tahmina Khatun	Cleaner
31.	Md. Bahar uddin	Record Keeper

Name of the Officers (Administration & Accounts), Staff with Designation

Sl.NO.	Name	Designation
01.	Md. Anwar Hossain	Seperientendent
02.	Hasan Ahmed Khokun	Head Assistant
03.	Mrs. Rokhsana Akter	UDA
04.	Mansur Alam	LDA/ Computer Operator
05.	Md. Anisur Rahman	LDA/ Computer Operator
06.	Md. Monir Hossen	LDA/ Computer Operator
07.	Jhumor Khatun	LDA/ Computer Operator
08.	Mrs. Asma Begum	Senior Gardenar
09.	Md. Nasir Uddin	Recird Keeper
10.	Mrs. Jamina Akte	Office shohayok/MLSS
11.	Md. Saiful Islam	MLSS

Name of the Fellows with fellowship name

Sl. No.	Name	Fellowship Name	Supervisor Name
01.	Meher Nahid	Dr. Kudrat -I-khuda Doctoral	Dr. Mohammad Nazrul Islam Bhuiyan
02.	Banasree Bhowmik	Prof. Nurul Afsar Khan Post graduate	Dr. Mohammad Nazrul Islam Bhuiyan
03.	Sajia Islam	Prof. Nurul Afsar Khan Post graduate	Salma Ahmed
04.	Md. Sujan Hossen	Prof. Nurul Afsar Khan Post graduate	Salma Ahmed
05.	Md. Munnaf Hossen	Prof. Nurul Afsar Khan Post graduate	Md. Alamgir Kabir
06.	Abdur Rahim	Prof. Nurul Afsar Khan Post graduate	Dr. Kanika Mitra
07.	Md. Asif	Prof. Nurul Afsar Khan Post graduate	Dr. G. M. M. Anwarul Hasan
08.	Md. Akter Hossain Reaz	Dr. Abdullah Al Muti Sharafuddin Smrity	Dr. Tasnim Farzana
09.	Khurshida Jahan Tisa	Dr. Abdullah Al Muti Sharafuddin Smrity	Dr. Md. Abdus Satter Miah
10.	Miskat Sharif	Dr. Abdullah Al Muti Sharafuddin Smrity	Abu Tareq Mohammad Abdulla
11.	Kazi Asma Ahmed Shamima	Prof. Nurul Afsar Khan Post graduate	Dr. Mohammad Nazrul Islam Bhuiyan

Promotion/Transfer/Joining/PRL/Resign

Promotion

Dr. Mohammad Nazrul Islam Bhuiyan, PSO , Date: 10.10.2021

Md. Nur Mohammad , JEO, Date: 21.04.2022

Md. Alamgir Khan, JEO, Date: 21.04.2022

Dr. Kanika Mitra, PSO, Date: 21.04. 2022

Joining

Md. Hasib Pathan, SO, Date: 10.05.2022

Tanki Ashraf, SO, Date: 10.05.2022

Md. Abdus Sabur, SO, Date: 10.05.2022

Sheikh Muzahidul Islam, SO, Date: 26.06.2022

Kiron Shikder, SO, Date: 26.06.2022

Anik Kumar Saha, SO, Date: 26.06.2022

Amin Hosen, SO, Date: 26.06.2022

Shariful Islam, SO, Date: 26.06.2022

Rahima Begum, Assistant Administration Officer, Date: 06.01.2022

Jhumor Khatun, LDA/ Computer Operator Date: 19.12.2021

PRL

Dr. Sultana Anjuman Ara Khanom, CSO Date: 08-11-2021

Kanika mondal, PSO, Date: 11-01-2022

Nur Nahar, Administration Officer, Date: 09-01-2022

Md. Anwar Hossain, Superintendent, Date: 14-06-2022

Md.Rezaul Islam, Technician, Date: 05-04-2022

Md. Shah Alam, Senior Technician, Date: 10-02 2021

Different Committees of IFST

A. Committees based on PPR-2008

1. Laboratory Inspection Committee

- i) Dr. Md. Mahbubar Rahman, PSO, IFST - Convener
- ii) Md. Motalab, SSO, IFST - Member
- iii) Nourin Tarannum, SO, IFST - Member
- iv) Dr. Sadia Afrin, SSO, IFST - Member
- v) Md. Mamunur Rashid, SO, IFST - Member-Secretary

2. Tender Specification Estimated Rating Committee

- i) Tanzir Ahmed Khan, PSO, IFST - Convener
- ii) Dr. Enamul Haque, Department of Chemistry, DU - Member
- iii) Dr. Abhijit Chowdhury, SSO, IFST - Member-Secretary

3. Picnic Committee

- i) Abdul Jalil, PSO, IFST - Convener
- ii) Mr. Abu Tareq Mohammad Abdullah, PSO, IFST - Member
- iii) Dr. G. M. M. Anwarul Hasan, SSO, IFST - Member
- iv) Dr. Kanika Mitra, PSO, IFST - Member
- v) Meher Nigad Nipa, SSO, IFST - Member
- vi) Faridul Islam, SSO, IFST - Member
- viii) Dr. Mohammad Nazrul Islam Bhuiyan, PSO, IFST - Member-Secretary

4. Ethics and Integrity, Strategy and Action Planning Committee

- i) Dr. Sultana Anjuman Ara Khanom, CSO, IFST - Convener
- ii) Mr. Abu Tareq Mohammad Abdullah, PSO, IFST - Member
- iii) Dr. Sharmin Jahan, SSO, IFST - Member
- iv) Md. Mamunur Rashid, RC, IFST - Member
- v) Dr. Mohammad Nazrul Islam Bhuiyan, PSO, IFST - Member-Secretary

5. Direct Purchased RFQ Evaluation Committee

- | | |
|--|--------------------|
| i) Dr. Tasnim Farzana, PSO, IFST | - Convener |
| ii) Tanzir Ahmed Khan, PSO, IFST | - Member |
| iii) Prof. Golzar Hossain, Department of Chemistry, DU | - Member |
| iv) Noorun Nahar, Ad./ Md. Monir Hossain, LDA, IFST | - Assistant |
| v) Md. Motalab, SSO, IFST | - Member-Secretary |

6. Stake Holder Seminar Organizing Committee

- | | |
|--|--------------------|
| i) Salma Ahmed, PSO, IFST | - Convener |
| ii) Abdul Jalil, PSO, IFST | - Member |
| iii) Dr. Tasnim Farzana, PSO, IFST | - Member |
| iv) Dr. Md. Mahbubar Rahman, PSO, IFST | - Member |
| v) Mohammad Tariqul Hassan, PSO, IFST | - Member |
| vi) Dr. Mohammad Nazrul Islam Bhuiyan, PSO, IFST | - Member |
| vii) Anjumanara Khatun, PSO, IFST | - Member |
| viii) Mohajira Begum, PSO, IFST | - Member |
| ix) Dr. Kanika Mitra, PSO, IFST | - Member |
| x) Dr. G. M. M. Anwarul Hasan, SSO, IFST | - Member |
| xi) Dr. Sharmin Jahan, SO, IFST | - Member |
| xii) Sharmin Akter Lisa, SSO, IFST | - Member |
| xiii) Maesha Musarrat, SO, IFST | - Member |
| xiv) Abu Tareq Mohammad Abdullah, PSO, IFST | - Member-Secretary |

7. Documentary Committee

- | | |
|---|--------------------|
| i) Abu Tareq Mohammad Abdullah, PSO, IFST | - Convener |
| ii) Md. Mamunur Rashid, RC, IFST | - Member |
| iii) Dr. Kanika Mitra, PSO, IFST | - Member-Secretary |

8. Tender Evaluation Committee

- i) Dr. Sahana Parveen, CSO, IFST - Convener
- ii) Mohammad Tariqul Hassan, PSO, IFST - Member
- iii) Mohajira Begum, PSO, IFST - Member
- iv) Prof. Dr. Sha Mohammad Masum, DU - Member
- v) Mr. Irfan Mahbub, Deputy Director (Financ & Bauget), BCSIR - Member
- vi) Dr. Mohammad Nazrul Islam Bhuiyan, PSO, IFST - Member-Secretary

9. Innovation Committee

- i) Dr. Mohammad Nazrul Islam Bhuiyan, PSO, IFST - Convener
- ii) Dr. Sadia Afrin, SSO, IFST - Member
- iii) Nourin Tarannum, SO, IFST - Member
- iv) Md. Zia Uddin Al Mamun, SO , IFST - Member
- v) Dr. G. M. M. Anwarul Hasan, SSO, IFST - Member-Secretary

10. Chemical Store Committee

- i) Mohammad Tariqul Hassan, PSO, IFST - Convener
- ii) Md. Motalab, SSO, IFST - Member-Secretary

11. Verification Committee

- i) Kanika Mondal, PSO, IFST - Convener
- ii) Dr. Sultana Anjuman Ara Khanom - Member
- iii) Dr. Kanika Mitra, PSO, IFST - Member
- v) Tanzir Ahmed Khan, PSO, IFST - Member-Secretary

12. e-GP Tender Evaluation Committee

- i) Salma Ahmed, PSO, IFST - Convener
- ii) Prof. Dr. Sumon Ahamed, IIT, DU - Member
- iii) Mohammad Tariqul Hassan, PSO, IFST - Member-Secretary

13. e-GP Tender Opening Committee

- i) Salma Ahmed, PSO, IFST - Convener
- ii) Dr. Abhijit Chowdhury, SSO, IFST - Member-Secretary

14. Training Committee

- i) Dr. Mohammad Nazrul Islam Bhuiyan, PSO, IFST - Convener
- ii) Md. Mamunur Rashid, SO, IFST - Member
- iii) Dr. Kanika Mitra, PSO, IFST - Member-Secretary

15. Annual Report Preparation Committee

- i) Dr. Mohammad Nazrul Islam Bhuiyan, PSO, IFST - Convener
- ii) Joynal Abedin, SSO, IFST - Member
- iii) Nourin Tarannum, SO, IFST - Member
- iv) Md. Hasib Pathan, SO, IFST - Member
- v) Dr. Kanika Mitra, PSO, IFST - Member-Secretary

প্রযুক্তি প্রগতির
পথ বলে গণ্য
ডিজিটাল বাংলাদেশ
হবে সকলের জন্য ॥
স্থপতি ইয়াফেস ওসমান



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