भाकृअनुप
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Fish technology NEWSLETTER

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Summer Institute on Agro-climatological Instruments

A 9-day Summer Institute on Agro-climatological Instruments was held at the Central Institute of Fisheries Technology (CIFT), Cochin, from June 6, 1989. Sponsored by the Indian Council of Agricultural Research, the Summer Institute was designed to expose two dozen electronic instruments developed by CIFT for the benefit of scientists and engineers engaged in climatological investigations connected with agriculture, fisheries, water resources, weather forecasting etc.

Some of the instruments are Environmental Data Acquisition System (EDAS), Solar Processing Monitor (SPM), Multichannel Soil Moisture Meter (MSMM), Ocean Tele Lab (OTL), Ship-borne Data Acquisition System (SDAD) etc.

EDAS is capable of acquiring 16 different agro-climatological and hydrographic data at a central place.

The SPM can acquire 11 different types of data pertaining to solar energy, wind energy and other environs.

The MSMM is useful for estimating water availability and water filtration properties of different types of soil.

Ocean Tele Lab acquires oceanographic parameters from ocean depths.

Ship-borne Data Acquisition System is another instrument which can be installed in ocean going vessels for monitoring of marine environmental parameters and performance of craft and gear. These instruments are at present being imported. Operated in remote and hostile environs, these instruments frequently require costly spare parts and repairs. The Govt. of India has, therefore, decided to

Dr. E. G. Silas, Vice-Chancellor, Kerala Agricultural University inaugurates the Summer Institute. Others are (L to R) Dr. K. Sivadas, Dr. K. G. Gopalakrishnan Nair, Shri M. R. Nair and Dr. K. Alagar Swamy

develop these equipments indigenously to make the country self reliant.

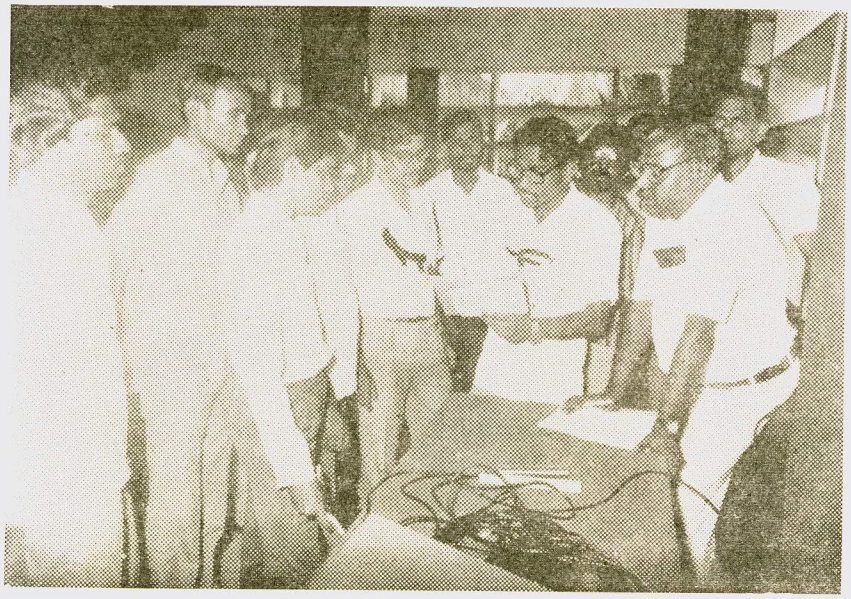
The importance of climatological investigations has increased recently in all levels, especially in agriculture. Assisting the farmers with information on type of crop, soil, watershed properties etc. is need of the hour.

Water management is another area in agriculture where indigenous electronic epuipments help to assess water consumption needs of the plants, and thus identify the plants and methods suitable for arid and semi-arid regions.

The Summer Institute was particularly significant at a time when the country is planning to install more than 200 large electronic weather stations for agricultural purpose To know more about climate and its impact on numerous living and non-living phenomena, installing floating stations in ocean has also been planned.

Inaugurating the Summer Institute on June 6, Dr. E.G. Silas, Vice Chancellor, Kerala Agricultural University, called upon the agricultural scientists to master the basic principles on which various instruments and devices work, their operational constraints and accuracy limitations, when they use indigenous technology for agro-climatological investigations.

Dr Silas said that instruments operated in field under hostile and remote environments were likely to be damaged or spoiled easily, and they needed more frequent repairs and maintenance. "It is difficult to repair and maintain imported equipments as the components used are highly monopolised and spares are not readily available. Indigenisation of the technology is the solution".



Dr. K. Sivadas with the participants

Stressing the importance of inter-disciplinary co-operation in the field of agro-meteriology, Dr Silas asked the scientists to exploit the benefit of every

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Rare serotypes of Salmonella isolated from fish

Fifteen different serotypes of *Salmonella* have been isolated in the microbiology section of CIFT from fresh as well as frozen fish collected from retail markets in Cochin. The serotypes included *S. adelaide, S. bareilly, S. braendrup, S. nchanga, S oslo, S. richmond, S. senftenberg, S typhimurium, S. virchow and S. weltevreden.* All of the serotypes have earlier been implicated in human salmonellosis. Some of them have very rarely been isolated from fish in India. The fishes included the common varieties like sardines, tilapia, kilimeen, pearlspot silver pomfret, black pomfret, seer, horse mackerel, grey mullet and pallikora. The isolation of these Salmonella serotypes from fish in retail trade is of great significance as it reflects on the poor hygienic standards in the retail markets.

(Contd from page 2)

technological development for agriculture through proper linkages and priorities. "We can make an appropriate policy in this line and make use of the space technology for resource estimation, weather forecasting etc. for benefits in agriculture"

Dr Silas said that many of the methodologies could not be applied as such, and developmental projects in this area were seldom taken up by electronic engineers and scientists owing to lack of opportunities for analysis of problems and co-ordinated efforts.

Dr K. Alagarswamy, Director, Central Institute of Brackishwater Aquaculture, presided.

Welcoming the gathering, Shri M. R. Nair, Director of CIFT, said that the Summer Institute was designed to give an exposure to the participants on theoretical principles and technological advantages of over two dozen electronic instruments developed by CIFT which would enable them for their profitable utilisation in systematic investigations.

Dr T. K. Sivadas, Director of the Summer Institute and Head, Engineering and Instrumentation Division of CIFT, said that some of the agro-climatological instruments developed by CIFT had already been acquired by about 50 departments in the country.

Dr M. R. Sethuraj, Director, Rubber Research Institute, Kottayam and Dr K. Gopalakrishnan Nair, Head, Department of Electronics, Cochin University of Science and Technology, also spoke.

Dr M. K. Kandoran, Principal Scientist (extension) of CIFT, proposed a vote of thanks.

Thirty scientists / technocrats representing 20 Government Departments all over the country participated in the short term course.

In the valedictory function held on June 14, Dr K. Harsh Gupta, Vice Chancellor, Cochin University of Science and Technology, was the chief guest. He also distributed certificates to the participants.

Shri M. R. Nair, Director of CIFT, presided. Shri H. Krishna Iyer, Head, Extension, Information and Statistics Division, welcomed the gathering. Smt. Vijayabharathy, scientist, CIFT, proposed a vote of thanks.

Dr. K. Harsh Gupta, Vice-Chancellor, Cochin University of Science and Technology, addresses the participants. Others are: (L to R) Shri M. R. Nair, Shri H. Krishna Iyer and Smt. K. Vijayabharathy

Fisherwomen Trained in Fish Processing

Sun drying has been the traditional, cheapest, oldest and popular method of fish preservation in the country. Oil sardine, Indian mackerel, sole, white bait, silver bellies etc. are traditionally sun dried on the sandy beach. Calicut and Mangalore on the south west coast, Tuticorin on the south east coast, and Sourashtra coast in the north west are the major centres of dry fish production in the country. About 18 per cent of the marine landings is preserved by sun drying and other curing methods. Till recently, a sizeable quantity of dried fish used to be exported to Malaysia, Singapore, Sri Lanka and African countries. With the advent of canning and freezing, the importance of sun drying as a fish preservation method diminished. However, sun drying remains the only cheap and acceptable method of making fish availabie to the rural poor in the interior parts of the country.

In this process dehydration is done after treatment with salt. Water is removed from the fish by addition of salt, and then drying on the open beach. This process often yields a product of poor quality, contaminated with sand, dirt and other spoiling agents. Such products cannot be stored for more than two months.

Improved Method

CIFT has standardised an improved method for preparing good quality dried fish. In this improved method, the fish after dressing, washing and application of salt in specific ratio, is stacked in clean cement tanks at least for 24 hours. The excess salt adhering to the fish is then rinsed off. The salted fish is dried to the required moisture content on clean drying platforms.

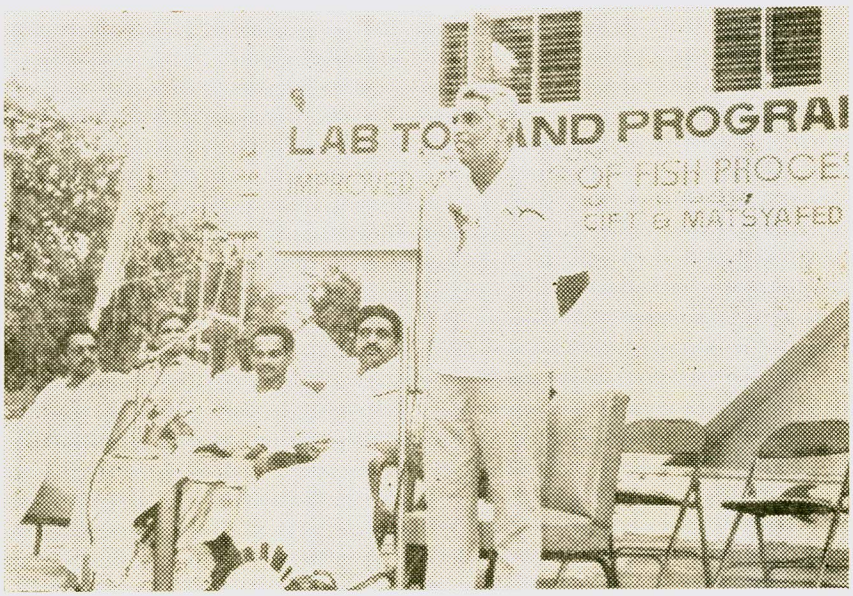
Dry fish are susceptible to losses in nutritional qualities due to protein damage, lipid oxidation and attack of micro organisms, blow fly infestation, beetle infestation, and fragmentation.

Protein damage and lipid oxidation can be prevented to a large extent by using fresh fish for drying, and using good packaging materials and suitable antioxidants. For losses occuring due to fly and insect infestation, fumigation is a satisfactory method; but it has its own limitations.

Micro organisms cause heavy damages in dried fish in the tropical countries. The major groups of micro-organisms seen in the dry fish are bacteria (mainly halophilic), yeasts and moulds (xerophilic moulds).

Since micro-organisms have an absolute requirement for water in order to grow, their growth can be considerably reduced by lowering the water content in the fish.

The research work conducted at CIFT has shown that certain chemical preservatives can be used to arrest the growth of microorganisms, particularly



Shri N. Abdul Latheef, ADM of Quilon, inaugurates the training programme. Advocate V. V. Sasindran, Shri P. V. Prabhu, Dr. K. Gopakumar & Shri Ansar Rahim are also seen

ODNRI training course on fish drying technology

The Overseas Development Natural Resources Institute (ODNRI) of the U. K. has conducted a one-week training programme each on fish drying technology at CIFT in April and May.

Twenty eight candidates representing the State Departments of Fisheries, Agricultural Universities, Integrated Fisheries Project (Cochin), Marine Products Export Development Authority (MPEDA), Bay of Bengal Project, Central Marine Fisheries Research Institute and fish processing and exporting trade, participated in the programme. Representative from Maldives and Sri Lanka also attended the training course.

Dr. K. Sakthivel, Director, MPEDA, inaugurates the training course. Next to him are : Shri M. R. Nair, Dr Ivor Clucas and Dr. N. R. Menon

fungus and halophilic bacteria. Dusting the dried fish with 0. 1% calcium propionate could reduce growth of micro-organisms and extend the shelf life of the dried product to above 10 months.

Training Programme

Under the Lab-to-Land programme of ICAR a one-week training programme in improved method of fish handling, salting, drying and packaging was conducted at Vadi, a fishing village in Quilon District, Kerala.

Twenty five selected fisherwomen, five each from five fishing villages — Thankassery, Mudakkara, Vadi, Port Quilon and Pallithottam — traditionally engaged in fish curing participated in the Lab-to-Land programme jointly organised by MATSYAFED and CIFT.

Inaugurating the programme on Feb. 7, 1989, Shri N. Abdul Latheef, Additional District Magistrate (ADM) of Quilon, expressed the hope that the 25 trained fisherwomen would follow and also transfer the improved method of fish processing among other fisherwomen in their villages which would ultimately help improve the economic position of fishermen families.

Stating that the fisherfolk in those villages were following traditional fishing methods, the ADM said that they were still being exploited by middle men, and they were far behind the other sections of society. "They have no chance to participate in the development activities", he said.

Dr. K. Gopakumar, Joint Director of CIFT, presided over the function. Shri Ansar Rahim, Quilon municipal councillor, Advocate V. V. Sasindran, and Shri N. Alias also spoke.

Dr. M. K. Kandoran, Principal Scientist of CIFT, welcomed the gathering. Shri K. Thankappan, Regional Manager, MATSYAFED proposed a vote of thanks.

Ms. O'Leary & Dr. Ivor Clucas of ODNRI took classes on subjects like spoilage of fish, scientific handling of fish, salting, quality control, packaging and storage of fish, different methods of fish drying etc.

Organised under the collaborative project on fish processing between CIFT and ODNRI, the training course was inaugurated by Dr. M. Sakthivel, Director, MPEDA on April 24.

Stating that there was a declining trend in the export of dried fish, mainly owing to its poor quality, Dr. Sakthivel urged for all-out effort to improve their quality both for domestic and export markets through developmental and pro-nutritional programmes.

Unless the fish drying technology was improved, India would be driven out from the field of dry fish export, he said.

"No uniform fish-drying method is adopted in the country. Hygienic handling is the main problem. However, we should make use of this important source."

Presiding over the function Shri M. R. Nair, Director, CIFT, said sundrying of fish, one of the oldest traditional methods of fish curing, was ignored when more and more sophisticated methods of fish processing like canning and freezing were introduced in the country. Shri Nair said that research work carried out at CIFT had solved a good number of problems related to the dried fish like reddening, attack by microbes etc. Referring to drying of fish with artificial dryer, Shri Nair revealed that investigations had demonstrated that the drying rate could be acclerated if the humidity of inlet air in the dryer was reduced by use of a desiccant like silica gel. "This technique is suitable for a tropical country like India where prolonged drying time is required to reduce the moisture content of the fish owing to high humidity in the atmosphere."

It was also observed that the efficiency of solar dryer could also be increased by the use of desiccants to reduce the humidity of the inlet air, he said.

Messers Ivor Clucas, ODNRI, London, M. M. P. Nambiar, Joint Director, Export Inspection Agency and Dr. N. R. Menon, Dean, School of Marine Sciences, Cochin University of Science and Technology, also spoke.

Dr. K. Gopakumar, Joint Dierctor, CIFT, welcomed the gathering. Dr. M. K. Kandoran, Head of Extension, Information and Statistics Division of CIFT, proposed a vote of thanks.

Fish drying on raised platforms

Certificates were distributed to the participants by Shri M. R. Nair at a function held on April 28 followed by a meaningful dialogue between the senior scientists of CIFT and the participants.

Mr. Clucas said that he could learn a lot of problems from the participants. He appreciated the impressive interaction among the participants.

World Bank Team Told to Finance Fishery Research and Extension

A three-member World Bank Team led by Mr. Francis Christy has held discussions with Senior Fishery scientists of CIFT and representatives of Seafood Industry on July 10, 1989.

The other members of the team were Dr. David James, Senior Fishery Officer, FAO and Dr. William F. Royce, Fishery Scientist from USA.

The object of the visit of the international study team, according to Dr. David James, was to locate international fisheries research needs for developing countries, identification and selection of research (long and short term), implementation of research programmes, and dissemination and use of research results.

Presiding over the discussion at CIFT conference hall, Mr. C. Cherian, President, Seafood Exporters' Association of India (SEAI). suggested that the research activities in the fisheries field should be more business oriented as "the development of fisheries in the country depend hundred per cent on the export of fishery products."

Commending on the valuable service rendered by the research institutes for the promotion of fisheries development, Mr. Cherian suggested that the fisheries scientists should have more interaction with the industry in order to identify its problems and prospects.

Dr. David James and Dr. William F. Royce with CIFT Scientists

World Bank Team hold discussion with representatives of seafood industry, Directors of Fishery Institutes and Senior Fishery Scientists (L to R.) Dr. K. Sakthivel, Director, MPEDA, Dr. David James, Mr. Francis Christy, Mr. C. Cherian, Mr. M. R. Nair, Director, CIFT and Dr. P. S. B. R. James, Director, CMFRI

CIFT Scientist bags Port of London Authority Prize

While asking the World Bank to provide more financial assistance for research in the country, Mr. Cherian suggested that it should carry out periodical studies to ascertain the extent of interaction between the research institutes and the industry.

In the field of resource information "We look forward for more details from the research institutes. There should be a separate wing to disseminate the innovations of these institutes", he said.

Mr. A. J. Tharakan of M/s Amalgam Foods Ltd , requested the Marine Products Export Development Authority (MPEDA) to initiate a national compaign to increase the basic quality and hygienic condition of Indian shrimps on par with the international market requirements.

Dr. P. S. B. R. James, Director, Central Marine Fisheries Research Institute, Dr. Sakthivel, Director, MPEDA, Mr. M.R Nair Director, CIFT, and Dr. K. Gopakumar, Joint Director, CIFT, also took part in the discussion.

Messers ARM Kassim, Vice President, SEAI, Captain K. M. Mathew, Joint Director, MPEDA, Ashok Padman of National Seafood, and Mohammed Ebrahim Sait of Indo Marine Agencies also attended the meeting.

Shri H. Krishna Iyer, Principal Scientist and Head, Extension, Information and Statistics Division of CIFT, has been awarded the 'Port of London Authority Prize' for his outstanding performance in the nine-month Post Graduate Diploma Course in Fish Marketing at the Humberside College of Higher Education, Grinsby, U. K., 1988–89.

The training course was part of CIFT–ODNRI collaborative research project on fish processing approved by the ICAR and the ODA of the Government of U. K.

Designed to expose the trainees to current trends in planning, development and management of fisheries, and to improved techniques of marketing fishery products, especially under conditions existing in developing nations, the course programme included fish business management, fish marketing, fisheries planning and development, management decision making and strategic management.

According to Shri Krishna Iyer the course has been very useful and worthwhile experience giving intensive exposure to the latest developments in management and marketing in fisheries, "which is perhaps the weakest point in the development of Indian fish processing industry".

Scientists should be effective communicators

The 11-day international seminar on Fishery Research Management which ended on September 22, 1989, at Phuket, Thailand, has stressed the role of fishery scientists as effective communicators to disseminate their research findings to the fishery managers According to Shri M. R Nair, Director of CIFT, the seminar noted that very often time-lag occurs between research and fishery management as the consequences of difficulty of communication of scientific findings in terms that can be readily understood by the managers.

"Advice on management measures shall not be given in isolation from other aspects, and one should think of management as a package of measures", the seminar recommended. "Useful cost saving strategy to engage in co-operative research involving the pooling or sharing of staff and equipment is relevant when there are institutes having similar or overlapping objectives.

Shri Nair was one of the four Indian participants, the others being Dr Krishna Lal Sehgal, Project Director, National Research Centre on Cold Water Fisheries, Dr D. Sudarsan, Director General, Fishery Survey of India, and Dr Arun G. Jhingran, Director, Central Inland Capture Fisheries Research Institute.

Organised by the FAO/DANIDA Project, "Farming in Fish Stock Assessment and Fishery Research Planning", the Seminar was attended by 93 senior fishery executives from China, Hongkong, India, Indonesia, Malaysia, Myanmar, Philipines, Sri Lanka and Thailand.

The Seminar was aimed to exchange knowledge and experience on marine fisheries research management, to formulate recommendations, and to define follow-up action to be implemented by the FAO/DANIDA.

Chitosan Arrests Bleeding, Heals Wounds

The chitosan, a chemical prepared from the discarded heads and shells of prawns by a process developed by CIFT, is poised to become a wonder drug to arrest bleeding, healing wounds and burns, apart from its other wide spectrum of applications.

The Ethical Committee of Trivandrum Medical College has cleared chitosan's use on humans following spectacular results in a series of experiments on animals conducted during the last three years.

The experiments, conducted by Dr M. Sambasivan. Director and Professor of Neurosurgery in the Trivandrum Medical College Hospital, and Dr. Radhakrishnan, Pathologist in the Sree Chitira Tirunal Institute of Medical Science and Technology, Trivandrum, conclusively proved the haemostatic and wound healing properties of chitosan.

It was also established that chitosan was biocompatible and that there was no side effect or reaction to its administration, according to Dr. Sambasivan.

Following the Ethical Committee's clearance, chitosan was applied, with excellent results, on two accident victims who had excessive haemorrhage.

In both the cases haemorrhage could be arrested speedily with the application of chitosan in powder form.

In another case, gauge impregnated with chitosan was used as a dressing to cover ulcers, and the wound healed fast.

Chitosan films were also reported to have application in curing wounds and burns.

Chitosan powder, chitosan impregnated gauze and chitosan films were developed and made available to the hospital by CIFT.

International Seminar on Pelagic Fish

Dr K. Gopakumar, Joint Director and Dr P. K. Surendran Scientist of CIFT attended the 4-day conference on pelagic fish from Sept. 26 to 29, 1989 held at Torry Research Station Aberdeen, Scotland. Nearly 110 delegates from 20 countries of Europe, Asia and Africa took part in the conference. As a special invitee Dr Gopakumar also attended the 3-day FAO/ World Bank Consultancy on Pelagic Fish Utilization for Human Consumption at Aberdeen.

The Torry Conference, according to Dr Gopakumar, has recommended production of value-added food from pelagic fish.

The pelagic fish like sardine, mackerel and Anchoviella constitute 60–65 per cent of the total catch in many fishing nations. Now, in major fishing nations, pelagic fish is not properly utilised for human consumption. Major portion of it is converted into fish meal. The conference suggested effective use of the pelagic fish resources as answer to shortage of human food.

The conference noted that the pelagic fish are prone to rapid degradation, development of rancidity and spoilage. So its use as human food has limitations. Most pelagic fish exhibit cyclical fluctuations in availability. The factors responsible for this phenomenon are not known. One of the major reasons can be increased fishing efforts and over exploitation of depleting stocks.

WORK SHOP ON FISH PROCESSING

Dr. K. Gopakumar also participated in the International workshop on "Post harvest Technology, Preservation and Quality of Fish in South East Asia", sponsored by the International Foundation for Science, (IFS), Sweeden, held at Bangkok, Thailand, from Nov. 13 to 17, 1989.

The conference had ten sessions, two of which were chaired by Dr Gopakumar. Twenty six delegates and 29 observers, representing 15 countries and a host of universities/institutions participated in the workshop. The major topics of deliberations were fermented fishery products, depuration of mussels and oysters, fish spoilage, insect infestation and losses in cured fishes. Dr Gopakumar presented a paper entitled "Post harvest Technology for Tropical Fish – a Review" in the session of "Handling of Wet Fish."

INTERNATIONAL SEMINAR ON GRACILARIA

Dr P. T. Mathew, scientist of the Processing & Packaging Division of CIFT, participated in the international seminar on "*Gracilaria* production and utilization, in the Bay of Bengal held at Songkhla, Thailand, from Oct. 23 to 27, 1989. He presented a paper entitled "Prospects of Agar Industry in India." In this paper, he has elaborated the different aspects of processing of agar from *Gracilaria* and *Gelidium* sp. of seaweeds, available off the Indian coasts.

TRAINING ABROAD

P. A. PERIGREEN

Under the CIFT-ODNRI collaborative research project on fish processing Shri. P. A. Perigreen, Scientist of CIFT, was deputed to ODNRI, London, for a six week study from June 5, 1989. As part of the programme on reduction of post harvest fish losses, Shri Perigreen studied the properties of dried fish mince and other value added products.

According to him there is good scope in India for the production of battered and breaded fish products and value added products for domestic and export markets. "Production of mince from low cost fish/by-catch and development of products from mince should be given top priority. This will make fishery industry more profitable and help to reduce post harvest losses."

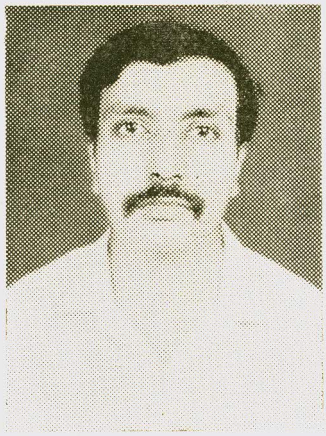
During his stay in London, Shri Perigreen visited the Torry Research Station, Aberdeen and School of Food Studies of

Doctorate Awarded

Shri M. R. Raghunath, Scientist of CIFT, has been awarded Ph. D by the University of Saskatchewan, Canada, for his thesis, "The Nature of Autolysis in Fish Silage and the Use of Fish Silage as a Substrate for the Reverse Protolytic (plastein) Reaction."

Dr Raghunath carried out his research under the supervision of Dr Alan R. Mc Curdy of the Department of Applied Microbiology & Food Science, University of Saskathewan, Canada.

The possibility of using the silage from rainbow trout viscera as a substrate for the reverse protolytic (Plastein) reaction and thereby recovering a high quality protein was the objective of his study.



Dr. Raghunath

It was found that the production of fish silage by autolysis is a superior alternative to the utilization of industrial fish and fishery wastes by the energy and capital intensive manufacture of fish meal.

Fish silages, traditionally made by acidification with organic acid at pH 3 or higher, were unsuitable for plastein synthesis. High protolytic activity of both endopeptidases and exopeptidases was present in pH 3 silages and the production of short peptides and free amino acids by the latter type of proteinases was responsible for the inability of such silages to support plastein synthesis. In pH 2 silages made with sulfuric acid, the proteolytic activity was limited to pepsin type proteinases and a weak amino-peptidase activity. The exopeptidase (amino peptidase) activity could be minized by using formic acid to suppress the rise in pH of the silage during autolysis. Autolyzates from such silages contained lower amounts of longer peptides, and were capable of forming plasteins.

Utilizing autolyzates from a trout viscera silage initially ensiled at pH 2 in the presence of formic acid (3% w/w) as substrate, several parameters involed in plastein synthesis were optimized. A degree of hydrolysis of 65-70% was optimum for plastein synthesis from silage. The optimum concentration of the autolyzate for synthesis was 40% (w/w) and the concentration was best achieved either by evaporation at 60°C or by freeze drying. Pepsin was the most plastein productive enzyme. The recovery of plastein from trout viscera silage was quite poor with only 1.7% of the dry matter and 5% of the protein in the raw material being recovered. The presence of small peptides and free amino acids in the autolyzate and the poor recovery of the autolyzate from silage were partly responsible for the low yield.

Shri P. T. Mathew, Scientist of CIFT, has been awarded Ph. D. degree by the Cochin University of Science and Technology for his thesis "Purification and characterisation of glucose 6-phosphate Dehydrogenase in fish". He conducted his studies under the supervision of Dr. K. Gopakumar, Joint Director of CIFT.

Humberside College of Higher Education at Grinsby. He also visited some leading fish processing establishments at Fraseburgh and Grinsby.

P. K. SURENDRAN

As part of the CIFT–ODNRI collaborative research project in operation since 1983, Dr P. K. Surendran, Scientist of CIFT, was deputed for a research attachment for a period of 3 months from August 17, 1989 in the Torry Research Station, Aberdeen and ODNRI, Chatham, U. K. During his research attachment in the Torry Research Station, he received instructions on the automated methods for Salmonella detection and determination of the base composition of bacterial DNA. In the ODNRI, Chatham, he made investigations on the methods of detection and identification of *Listeria monocytogenes* from meat products and application of OXOID Salmonella rapid test kit for the detection of *Salmonella* from food products.

Nehru Centenary All India Exhibition

A combined stall of CIFT and CMFRI was put up at Thiruvalla Municipal Stadium for an all India Exhibition organised in connection with Nehru Centenary. Organised by the Thiruvalla Municipality, the exhibition lasted for 40 days from January 29, 1989.

Front view of the combined stall put up by CIFT and CMFRI at Thiruvalla

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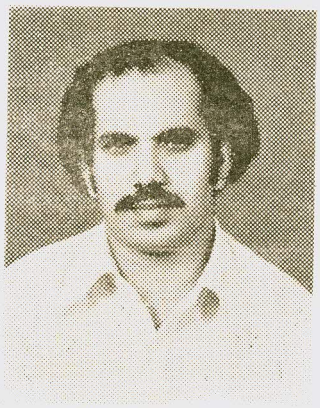
Attempts have been made to find out cheap sources and new methods of extraction of enzyme glucose 6-phosphate dehydrogenase. Dr. Mathew's thesis is a comprehensive work on the enzyme glucose 6-Phosphate dehydrogenase from various species of fish. He has isolated the enzyme from marine, fresh water and brackish water fish. Glucose 6-phosphate-dehydrogenase has been purified from the liver of pearl spot. Various methods were adopted for purification of enzyme in pure and homogeneous form. Physical and chemical characteristics were also determined. Molecular weight of the purified enzyme was also found out using molecular siewing and gel electrophoresis. It was found that molecular structure of glucose 6-phosphate dehydrogenase purified from fish was different from other sources. Amino acid pattern was also determined. Inhibition and activation of the enzyme by various metalic and non metalic compounds were also studied.



Dr. P. T. Mathew

A new technique for immobilizing the enzyme has been found for stablilizing enzyme activity, using chitosan, isolated from an industrial waste material, prawn shell. Immobilized enzyme has higher stability than the natural enzyme. The new knowledge of enzyme purification structure, mechanism and immobilization would find wide spread application in biotechnology and industrial, pharmaceuticals.

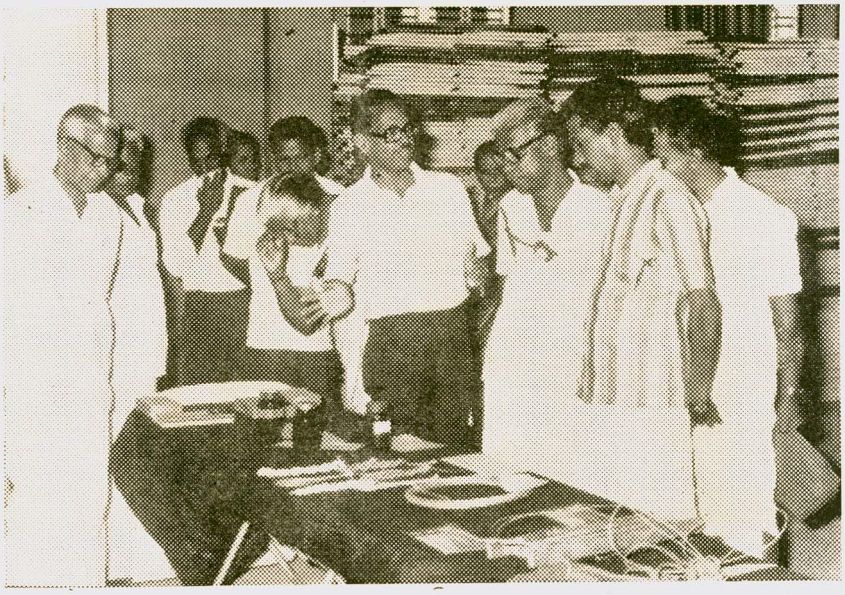
Seminar-cum-exhibition

In connection with the Nehru Centenary Year, a one-day exhibition and domonstration was organised at Puthuvaipu, a fishing village in Ernakulam District, on June 29, 1989.

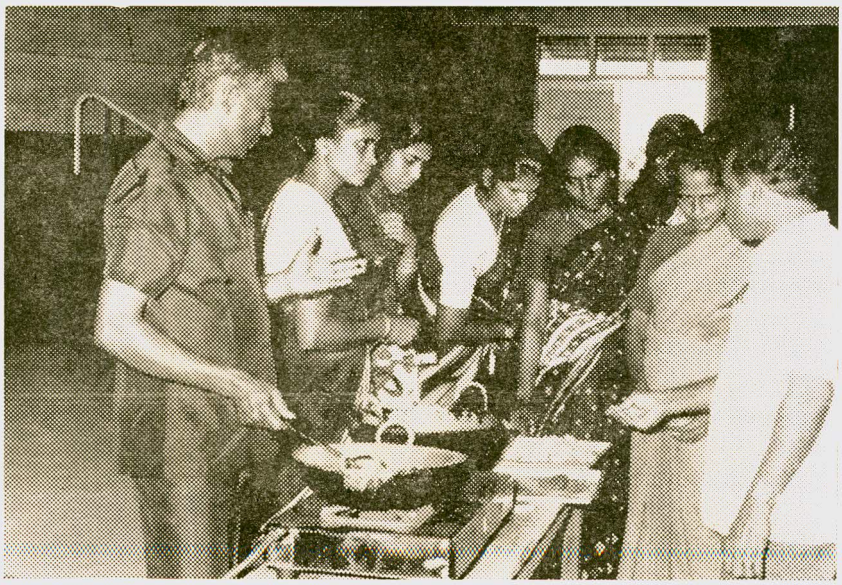
The focus of the exhibition was the low cost technology developed by CIFT in the field of fish processing that can generate employment potential for coastal fisherwomen.

The technologies of production of value added products like fish pickles, fish wafers, fish soup powder, fish cutlet etc. were explained and demostrated.

Shri C. K. Mohanan, Elamkunnapuzha Panchayat President inaugurated the exhibition.

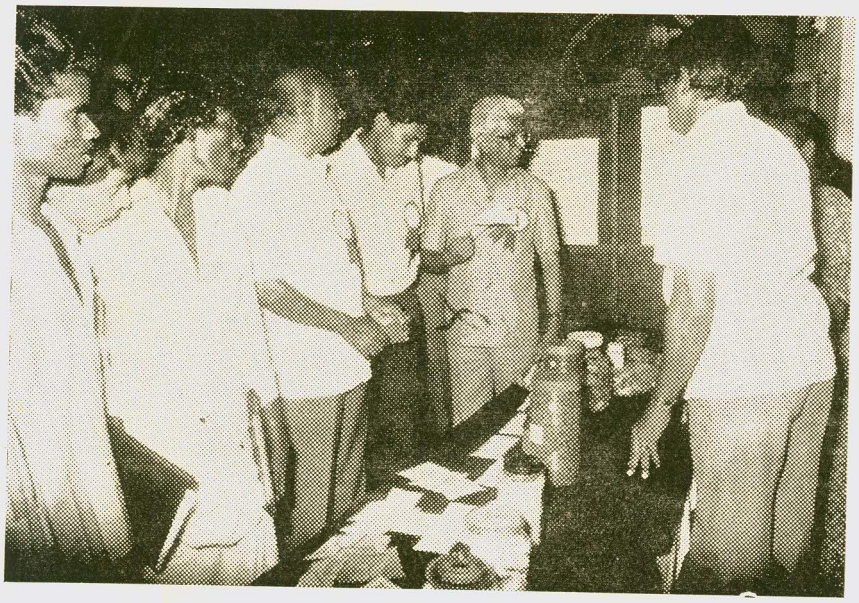


A view of the exhibits



Frying of fish wafers and fish cutlets

Low cost technology exhibition



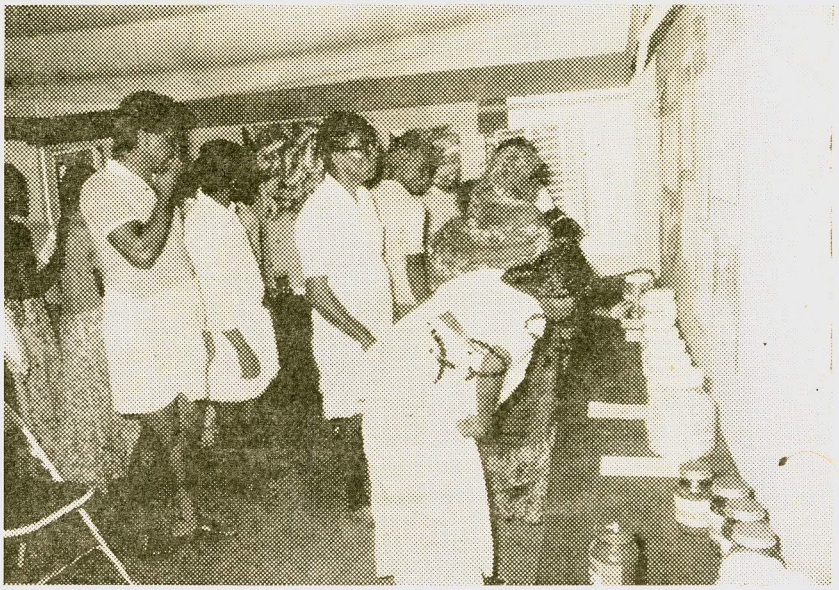
Participants of the Seminar visit CIFT stall

A three-day exhibition was conducted at Calicut Townhall from August 29, 1989. This was in connection with the National Seminar on "Challenging Opportunities in Science & Technology organised by the Task Force of Science and Technology Entrepreneurship Development (STED) project., Kozhikode.

A view of the exhibits

Science in everyday life

CIFT participated in the all India Science & Technology Demonstration and Exhibition at Ottappalam. 'Science in every day life' was the theme of the exhibition. Organised by the Department of Science & Technology, the exhibition lasted for 14 days from Sept. 1, 1989.



A view of the CIFT stall at Ottappalam.
An old lady tries to read the description card

Rural people throng to the stall

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CIFT Appointments, Promotions etc.

APPOINTMENTS

1. Shri P. A. Uthup joined Head Quarters as Asst. Finance and Accounts Officer
2. ,, Kirtan Kisan joined Head Quarters as T–1 (Electrician)
3. ,, P. P. Varghese joined Head Quarters as Junior Clerk
4. ,, R. Chelleppan joined Head Quarters as Supporting Staff Grade–II
5. ,, K. K. Madhavan joined Head Quarters as Junior Gestestner Operator
6. ,, Thampi Pillai joined Head Quarters as T–2 (Draughtman)
7. ,, Lokya Nayak joined Head Quarters as T–II–3 (Technical Assistant)
8. ,, Rakesh Kumar, joined Head Quarters as Administrative Officer
9. Smt. M. V. Valsala joined Calicut Research Station as SSG–I
10. Shri Shitla Prasad Tivari joined Veraval Research Station as Hindi Translator
11. ,, B. N. Patil joined Veraval Research Station as SSG–I
12. ,, K. V. Mohanan joined Head Quarters as driver
13. ,, R. Nakulan joined Head Quarters as driver
14. ,, N. Subramonian joined Head Quarters as Supdt. (Audit)
15. ,, M. Nasar joined Head Quarters as Scientist - S2 (Naval Architect)
16. ,, M. V. Baiju joined Head Quarters as Technician – 5 (Naval Architect)
17. ,, M. T. Joseph appointed as Assistant at Head Quarters
18. ,, P. K. Sreedharan, appointed as Sr. Clerk at Head Quarters
19. ,, A. R. John appointed as SSG. II at Head Quarters
20. ,, S. R. Vijayakumar joined Head Quarters as Junior Clerk
21. ,, J, Samarajan joined Headquarters as T–1 (Field Assistant)
22. ,, G. Chinna Rao joined Kakinada Research Centre as Junior Clerk
23. ,, Durgacharan Besra joined Head Quarters as Technician – 7 (Skipper)
24. ,, U. K. Bhanumathy, joined Head Quarters as SSG–I
25. ,, M. N. Sreedharan joined Head Quarters as SSG–I
26. Smt. Lillikutty George joined Head Quarters as Junior Clerk
27. Miss Thriveni joined Bombay Research Centre as T–II–3 (Media Supervisor)
28. Shri A. Venugopalan Nair joined Head Quarters as T-II-3 (Wireless Operator)

RETIREMENT

1. Shri M. U. Vijayan, T-II-3 (Senior Mechanic)
2. ,, N. J. Tandel, T-I-3 (Driver Launch) from Veraval Research Centre
3. ,, T. S. Bhaskara Menon, T-I-3 (Senior Mechanic) from Head Quarters
4. ,, K. X. Joseph, SSG. III, from Head Quarters

DEATH

Shri T. K. Rajappan, SSG. I, Head Quarters

TRANSFER

1. Shri M. Shanmughavelu, SSG. I from Head Quarters to CMFRI, Mandapam
2. Shri A. Ravindran Nair, SSG. I, from Head Quarters to CTCRI

TERMINATION

Shri K. Rajappan Pillai, Jr. Clerk, from Head Quarters

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