



BULLETIN

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Solutions for National Problems Through Inventions

Sri Lanka Inventors Commission, with the intention of promoting an innovative culture to utilize new inventions to boost the national economy, recently advertised for new innovations for selected products, the products being, Temporary garbage unit, Healing cream for wounds using herbal extracts, Potable water purification plant, Karawila (Bitter gourd) based food for children under 14 years and also for Biotechnology based solutions to curb breeding of mosquitoes.

With a background in formulating different types of food with a variety of raw materials, officers from Food Technology Section- Mrs. Damitha Rajapakse and Mrs. Agnes Fernando together with Mrs. Gayani Samarasinghe (Research Student – CARP) came out with a solution to prepare a range of tasty food for children based on Karawila.



The main challenge of this invention was to make attractive nutritious and tasty foods from Karawila. Karawila is a vegetable which is not very acceptable among children due to its bitterness. The criteria given by the commission for this in-

vention are as follows; the main ingredient of the product should be Karawila, the nutritional value of Karawila should not be destroyed, expiry date must be experimentally identified, ingredients must be quantified and preservatives should be according to the quality standards.

Keeping the above objectives in mind, ITI officers came out with a “Sandwich Spread” prepared from Karawila preserved in brine, which won the first prize of the Grand Challenge Competition 2006. They also prepared a nutritionally balanced meal with Karawila using rice and green



gram in the form of burger which they named “Karawila Super” where the method of preservation was freezing. This was awarded the second prize, which they shared with two other inventors.

The selection was done after a tough competition with more than fifty applicants at the initial stage. After a presentation, only five competitors were selected and they were asked to prepare the food in front of an expert panel, which comprised of Food Technologists nutritionist and legislators.

The award ceremony was held at the Presidential Secretariat on the 28th December 2007 at the presidential awards ceremony.

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Our Mission

To provide demand driven scientific industrial R&D and internationally competitive technical services to catalyse rapid industrialisation for the benefit of the people of Sri Lanka

ITI Carries Out Baseline studies in Galle Harbour

With the view of improving the infrastructure for the development of the economy and to upgrade the living quality of Sri Lankans, the government has initiated various development programmes. One such project is the expansion and development of the Galle Harbour. Initially, an Environmental Impact Assessment study of Galle harbour was carried out and what emerged from the report was the need for the collection of baseline data on various environmental parameters for comparisons and monitoring purposes in the future. This would also go a long way towards fulfilling the need for having baseline data on various important sites in the country.

Implementation of the project was handed over to Pacific Consultants International in Japan. This company has sub contracted the collection of baseline data on water, sediment and air quality, noise and vibration levels, and flora of the sea and land in and around the harbour, to the ITI. Evaluation of water and sediment quality is carried out by the Chemical and Microbiological Laboratory while the other areas are carried out by the relevant divisions of the ITI.

Due to the sensitive nature of the project, many barriers had to be overcome before commencing the work. The Galle port is located in a high security zone and thus clearance from Sri Lanka Navy is a necessity when collecting samples in the harbour. After approval was obtained, collection of water and sediment samples from the sea around Galle harbour was carried out by the members of the CML during of the months of November and December last year. Officials from the Ports Authority and SL Navy assisted in sample collection.



In sample collection if the water depth was 2 m or less the sample collected from the water surface was considered as the representative sample. However, when the water depth was more than 2 m, another sample was collected from the sea bottom by using a special water sampler designed at the ITI. Nineteen seawater samples were collected in duplicate from 12 pre-specified sampling points. The sampling points were identified using the Global Positioning System. In each sample the pH, temperature, salinity, dissolved oxygen and electrical conductivity were measured on-site using portable field instruments. The water samples were brought back to the CML to evaluate the other parameters, such as total nitrogen, total phosphorous, suspended solids, oil, grease, sulphides, biological oxygen demand, heavy metals, microbial quality and organochlorine pesticides. Sediment samples were collected by a diver from 11 sampling points in duplicate and they will be analysed for heavy metals and organochlorine pesticide. At present the sample analysis is in progress and the report will be submitted presently.



The ITI is proud to report that its laboratories were selected for this work, by Pacific Consultants International in Japan after a rigorous selection procedure. The accreditation of the laboratories of the ITI had been an added advantage in being selected for these baseline studies.

For the sampling session Mr. M. N. A. Mubarak, Mr. S. Malavipathirana, Mr. P. K. Ajith Chandana, Mr. Chaminda Navaratne, Mr. Asoka Peiris and the members of the support staff of the ITI participated.

For further inquiries, please contact Mr. S. Malavipathirana, Mr. M. N. A. Mubarak and Mr. P. K. Ajith Chandana; e mail malavi@iti.lk, mnam@iti.lk and ajith@iti.lk; T.P. 2674461

EQUIPMENT CORNER

Mobile Laboratory for Air Quality testing

The National Environmental Act of 1994 of Sri Lanka specifies ambient Air quality levels for common air pollutants viz. Suspended Particulate Matter (SPM), Sulfur Dioxide, Nitrogen Dioxide, Carbon Monoxide, Ozone and Lead. Air quality surveys are required to get baseline data before initiation of development projects like industrial estates, power plants, high ways etc, and to monitor the effects of construction and operation of these projects. In addition ambient air quality is monitored at the boundary of industries, to determine if an environmental nuisance is being caused to the neighbours and to enable industries to obtain Environmental Protection Licence.

The ITI has facilities to measure all these parameters in ambient air and has a mobile laboratory which could be driven to almost any locality. This would enable continuous monitoring of these parameters over a period of time.



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Proper Use and Management of High-End Analytical Instruments

The Chemical and Microbiology Laboratory (CML) of the ITI organized a workshop on the Proper Use and Management of High-End Analytical Instruments, in October 2007. At the workshop, much emphasis was placed on upgrading the analytical standards of laboratories to meet global requirements. The main target groups were laboratory managers, chemists, academics and laboratory technical staff. Publicity for this workshop was sponsored by local analytical instrument supplying agents.

The programme covered a vast area in analytical chemistry including quality assurance in analytical laboratories, theoretical and practical aspects of using high-end analytical instruments and basic instruments and sample preparation. The programme was very comprehensive as it covered data handling and interpretation as well. Most of the analytical laboratories in the country do not participate in proficiency testing (PT), which gives a good indication of the accuracy and the precision of the data collected and its traceability. As the CML laboratories are accredited and have a wealth of experience in PT, the participants were given the opportunity to gain experience in this area through a PT model for the atomic absorption spectrophotometer.

This workshop was not a run-of-the-mill student vs lecturer based workshop where the participants listen to the lecturers and watch the demonstrations. The participants had the opportunity of gaining hands on experience on various high-end analytical instruments after the lectures. They were given various samples to analyse using the ITI

laboratories and on the last day the data collected by the participants were statistically analysed giving them the opportunity learn from the collection and interpretation of data.

Discussions and brain storming sessions were held with the participation of the resource personnel and Heads of the technical divisions of the ITI. Through this both ITI and the participants stood much to gain. The participants got the opportunity of resolving their analytical problems and the ITI was able to publicise and market the testing facilities available at the Institute.

For the workshop both local and foreign experts were invited as the resource personnel and at the end of the workshop, the participants were given a questionnaire to evaluate the workshop and resource personnel. All the resource personnel got more than 90% rating. The workshop also opened many avenues and created awareness among the participants of the resources that ITI has. According to the feedback received from the questionnaire the workshop was an unqualified success, and it was also suggested that another one be held in the near future. According to the organizers, the success of the workshop was attributed to the teamwork shown by all.

For further inquiries, please contact Mr. S. Malavipathirana, Mr. M. N. A. Mubarak and Mr. P. K. Ajith Chandana; e mail malavi@iti.lk, mnam@iti.lk and ajith@iti.lk; T.P. 2674461

Wood Preservative using Cashew Nut

Shell Liquid

A wood preservative using cashew nut shell liquid has been developed by the Materials Laboratory of the ITI exclusively for a private organization. Laboratory development has been completed and field testing of the product is in progress. The properties being tested include ability of the treated timber to withstand termite attack & fungus resistance. Environmental impact (leaching) studies & durability of the preserved timber under conditions of outdoor exposure are also being studied. The project is funded by the Sri Lanka Cashew Corporation.

Virgin Coconut Oil

Pilot scale demonstrations on the production of virgin coconut oil have been carried out by Mr. R. M. N. C. B. Ranaweera and Mr. J. D. Madanayake of the Food Technology Division of the ITI and machinery to the value of Rs. 6 Mn required for commercial production, imported from Germany. The process line has been commissioned and trouble shooting is now being carried out to improve the quality of the product and optimize the output. The technology was transferred on a three year royalty basis agreement with exclusive rights. An Export market for the product is expected as there is a growing demand for virgin coconut oil in the world market for use for culinary purposes and for cosmetics.

Mushroom Day at ITI

Mushrooms are usually eaten as curries with another staple food. The Food Technology Division (FTD) of the ITI has developed many mushroom-based products and with the view of introducing new products based on mushroom the FTD organized the Mushroom Day on 15th November last year.

High quality mushrooms are important in preparation of high quality product. Thus the workshop was started with a lecture on mushroom cultivation followed by a lecture on the diseases and pest control. The guest lecture on “High value mushroom cultivation - Button mushroom” was delivered by a Research Officer of the HORDI.

Lectures on mushroom cultivation were followed by the display of the mushroom-based product developed at ITI. New products, mushroom sausage, burger, soup mixture, sauce, chutney, pickle etc. developed at the FTD of the ITI were introduced. Hygienic practices in preparation of mushroom products were also introduced to the participants. Final lecture for the day was on the rules and regulations of food labeling which are important when marketing the products. The Mushroom Day was a very successful event and due to the request of the participants a follow-up seminar was held. That day the guest lecture was delivered by a private mushroom grower who also sponsored the second seminar.



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