

WASTE PRAWN SHELLS TO EXTEND THE SHELF-LIFE OF PAPAYA

Ms. Ilmi Hewajulige, a Senior Research Officer attached to the Food Technology Section of ITI has been awarded a PhD from the University of Colombo for her work in the field of post harvest technology. In her study she was successful in finding a method to extend the storage life of papaya using a waste material.

In the recent past, papaya was cultivated primarily as a home garden crop. However, due to the increasing demand in the local market and its increasing export markets, papaya is now grown on a much larger scale and in a more organized manner. Presently, papaya is exported to Maldives, Middle East and some European countries. To expand the export market of this fruit to the lucrative EU markets, it is important that the postharvest management practices be improved to meet the stringent quality standards of these countries. Common causative agents for post harvest diseases of papaya are the fungi of *Colletotrichum* species.

In the new method devised by Dr. Hewajulige to improve the post harvest management of papaya, as the first step, Dr. Hewajulige identified the antifungal activity of chitosan extracted from head and shell waste of prawn against *Colletotrichum* sp. Samples of the Rathna variety of papaya, which is one of the two varieties common in the country, were treated with an aqueous solution of chitosan and stored at low temperature at a pre-identified maturity stage. This treatment extended the shelf



life of papaya for 14 days without any adverse effect on the flavour.

Expanding her studies further, she subjected chitosan to gamma irradiation, and using this irradiated chitosan on papaya fruit, she found that the shelf life was extended by a further seven days. Red Lady is another common variety of papaya available in the market. Though it cannot be preserved using only chitosan, the shelf life extension was observed when using irradiated chitosan. According to the researcher this could be commercialized once a pilot study is done. We congratulate Ms. Ilmi Hewajulige on her achievement.

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ITI TRANSFERS TECHNOLOGY ON WOOD PRESERVATIVE FROM CASHEW NUT SHELL LIQUID

The Materials Technology Section (MTS) of the ITI recently transferred the technology on production of a third generation wood preservative from cashew nut shell liquid (CNSL) to the Sri Lanka Cashew Corporation (SLCC). Ministers Prof. Tissa Vitharana, Dharmadasa Banda and officials of two ministries, SLCC and ITI were present at this occasion which was held on 6th June 2008 at the S. F. Laurentius Auditorium of the ITI.



Chairman, ITI, Prof. V. Kumar addresses the gathering

Wood, being a ligno-cellulosic material, is vulnerable to termite and various microbial attacks causing rapid deterioration. Wood preservatives are used to protect the wood from microbes and insects. The first generation of preservatives used to protect wood were chromates copper arsenates or other organic compounds like Creosote which were highly toxic. High toxicity of these lead to the advent of 2nd generation wood preservatives which are basically copper complexes with various organic co-biocides. Their low mobility in soil made them less toxic than the first generation. However, though these 2nd generation wood preservatives are still in use, concerns over the environment and animals in the near future will create a demand for organic or 3rd generation wood preservatives which have even lesser toxicity. The movement towards a greener world will soon require wood preservatives also to be non-metallic, organic and greener. The cost factor involved in the production is one of the major set backs in producing an organic wood preservative.

An year ago, SLCC requested the ITI to develop a product from CNSL which was considered a waste material and which at that time had a potential annual production of about 1800 MT. After formal deliberations between the two parties, an agreement was signed and consequently the ITI undertook to carry out research aimed at developing such a product. This research project was funded by the SLCC.

Having worked on the project, the project team consisting of Mr. J. T. S. Motha, Head of the section, Mr. Saman Weeraratne, Research Officer, Mr. Dineth Samarawickrama, Technical Officer and Mr. A. S. K. de Alwis, Project Technician at the MTS were successful in developing an effective long lasting wood preservative using natural organic resources. They have transformed the natural termite repelling, but very unstable CNSL to a highly termite repelling, stable and antifungal wood preservative which can withstand prevailing natural environmental conditions, using a cost effective method of production.



Mr. Dineth Samarawickrama, Mr. A. S. K. de Alwis, Mr. Saman Weeraratne and Mr. J. T. S. Motha (from left to right)

Extending their studies on natural wood preservatives further, they are presently working on making a clear wood preservative and adding value to various cashew by products.

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MINIMIZING THE ELECTRICITY CONSUMPTION OF COMPUTERS

The Electro Technology Unit of the ITI has carried out a study on the power consumption of various brands and types of computers in order to find ways to minimize the electricity consumption of the computers at the ITI. The results of the study were found to be important even to the general public. According to the study the following steps should be followed to minimize the power consumption

General Instruction for computer power saving

- Use power saving setting available in the control panel of your computer
- Proposed power saving setting for computers which are used in laboratories and offices:
 - Monitor off - 3 to 5 minutes
 - Hard disk off - 5 to 10 minutes
 - Stand by/sleeps mode - 15 to 25 minutes
- Do not use screen server for long period
- Use dark colour wall paper for your computer



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(Exerpts from a technical note published by Mr. A. S. Panniala; picture from www.ala.org)

ISC DOCUMENT DELIVERY SERVICE

The Information Services Centre (ISC) of the ITI has recently started a new service to help the science and technology community of the country with regard to obtaining S&T information. As a developing country our S&T community has very limited access to scientific information; especially when it comes to the full text journal articles. Most of the article have to be purchased from the publishers at very high prices.

ISC being the largest S&T library in the country and having a collection of more than 100 000 full text articles in its reprint collection together with the access to international databases is in a position to help our researchers to overcome the problem. The reprint collection consists of articles dating back to about 50 years to very recent ones.

To be a beneficiary of this service, a deposit of Rs. 1000 could be made, and documents to this value would be made available to the client either in paper or digital formats on request. Charges for the soft copies will be Rs. 30/-

for one article upto 10 pages and Rs. 6/- for each additional page. For the hard copies, photocopying charges has to be paid in additon to the soft copy chrages. Requests could be made through telephone over e-mail or writing. The facility is available to the non-members of the ISC as well as to the members.



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Picture from
www.istockphoto.com

UNIDO NATIONAL CONSULTANTS

Ms. Shanthi Perera, Senior Quality Assurance Officer and Ms. W. A. J. Sajeevika, Research Officer of Industrial Technology Institute were appointed as UNIDO National Consultant in Food Safety Management System under the national project on 'Strengthening International Certification Capacity in Sri Lanka with respect to Social Accountability and Food Safety standards'.

They were selected after an interview followed by a ISO 22000:2005 Training Programme organized by UNIDO, Sri Lanka, Chamber of Industries, Sri Lanka Standards Institute and International Standard Organization. After successful completion of the training Ms. Perera was selected as a national expert on ISO 22000 implementation and Ms. Sajeevika was selected as a national expert for microbiology.

After being appointed as national experts both the officers have carried out many activities related to ISO 22000 consultation services including Gap Analysis, preparation of documents to be in line with the International Standard, awareness programmes on Food Safety and Good Manufacturing Practices for employees etc. Furthermore they are involved in assisting local food factories to upgrade the existing facilities for the implementation of HACCP and ISO 22000 Food Safety Management Systems.

EQUIPMENT CORNER

RACK DRIER FOR PRODUCING 'BLACK LIME'

Food Technology Section of ITI has designed and constructed a rack drier which can convert perishable lime into a product called 'Black lime' or 'dried whole lime' which has a high export potential. The high temperature required in drying lime is generated by the combustion of biomass .

This equipment can handle 60 kg of lime at a time and does not produce any smoke. The dryer produces non-smoke contact product and this will be a welcome trend in Black Lime production compared with the kiln dryer used at present.

For more information please contact Mr. Neville Amunugoda, e-mail: neville@iti.lk, T.P. 2693807 - 9 Ext. 241



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