



## Our Mission

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

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### ITI OFFERS TECHNOLOGY FOR THE MANUFACTURE OF RED CLAY TILES

Researchers of the Materials Technology Section (MTS) have recently developed the technology for the manufacture of red clay tiles with properties comparable with high quality ceramic tiles.

Red clay tiles are traditionally produced by extrusion, hydraulic pressing and firing. The firing process is slow and this results in higher production time. Compared to ceramic tiles, red clay tiles are inferior in quality in terms of strength, porosity and appearance. They are thicker than normal ceramic tiles and tend to craze when glazed. Glazing is usually done to improve appearance and resistance to abrasion. The development of a suitable low temperature melting glaze for red clay body has caused many problems, due to mismatching of the thermal expansion of the body with that of the glaze. Red clay based tiles having superior mechanical strength abrasion, glossy appearance and durability comparable to the high quality ceramic tiles has hitherto not been manufactured locally, and the research carried out at the ITI, is a significant breakthrough.

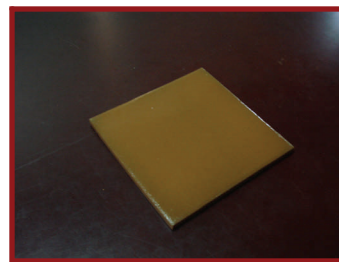
The novel process introduced by the researchers at ITI makes use of the spray drying technique and single low temperature firing. The body composition developed enables achievement of qualities comparable with high quality ceramic tiles. The glaze has been developed to achieve good transparency and desired colours with glossy surface appearance. The main economic advantage is the energy saving feature, which is due to the use of single fast firing and low maturing temperature. The capability of using red clay from any location in the country for the production process is another advantage.

the range of red clay products. A further benefit is that partial replacement of ceramic tiles with red clay base tiles will help conserve the limited resources of ball clay available in the country since ball clay is not needed for red clay products.

The Economic feasibility of the process has already been worked out. The method of transfer of technology could be negotiated.

The research was conducted on a grant provided by the National Science Foundation, as part of the "Coordinated Thematic Research Programme", under the category of "Sustainable Utilization of Natural Resources".

The Research team consisted of the following members; Mr. Lal Motha (Principal Investigator) Mr. Asanka Prematilleke (Co-Investigator) Mr. P. Hettiarachchi Mr. H M S Karunaratne.



A Red Clay Tile

The technology developed provides potential value addition to the red clay and granite rock deposits in the country and helps to diversify

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## INDUSTRIAL METROLOGY LABORATORY STEADILY GAINS INTERNATIONAL RECOGNITION

The Industrial Metrology Laboratory (IML) of the ITI was recently awarded a contract to carry out calibration work in ten Pakistani research laboratories. Under this assignment, 47 balances in these laboratories were calibrated and the work was completed within twelve days. This work was carried out by two experts from the laboratory, Mr. Nalin Liyanawaduge and Ms Thilini Pathiragoda. This is the third success story of the IML in the area of mass calibration carried out in foreign laboratories from 2004, the year IML gained Swedish Board for Accreditation and Conformity Assessment (SWEDAC) accreditation.

The IML gained accreditation from the SWEDAC for mass and thermometry in 2004. UNIDO assisted the IML during the inception through training and financial support in purchasing equipment and paying the accreditation fee for three years. Since then the laboratory is fast proving its expertise in metrology



Pakistani Researcher with Mr. Nalin Liyanawaduge and Ms Thilini Pathiragoda

of mass measurement and thermometry locally and regionally. Measuring mass, volume or temperature is a common activity even in day-to-day life. However, the aspects of calibration and accreditation are two important, but little known aspects related to measurement which ensures the accuracy and acceptability of the measurement. If mass is considered, calibration of a balance ensures the weight of one gram to be exactly one gram and accreditation ensures the acceptance of the measured one gram measurement everywhere in the world.

At present UNIDO is in the process of assisting Pakistani testing laboratories to achieve accreditation as per ISO/IEC 17025 standard by ILAC MRA signatory accreditation body within the framework of the Trade Related Technical Assistance programme funded by the European Commission. Although these balances are calibrated by their National Physical and Standards Laboratory (NPSL) it does not meet the traceability requirements as requested by the Norwegian accreditation body. Thus the services of an internationally accredited Metrology Institute to carry out on-site calibration of balances was required. After a stringent selection procedure, the IML was selected.

IML has gained a wealth of experience in calibrating laboratory equipment to local industrialists as well as overseas institutions. In Sri

Lanka calibration services are rendered to many export oriented companies as well as to the health sector. Regional level work was started in March 2008 with calibration services for the Health Laboratory of the Maldivian National Food and Drug Authority. Later that year five balances were calibrated for a private research laboratory in Pakistan. Another such assignment on mass calibration in Maldives is in the pipeline and once the formalities are over IML will embark on that assignment as well. The IML thus has now established itself as a renowned laboratory



Calibrating an analytical balance in one of the Pakistani laboratories

equipped with modern equipment necessary to carry out calibration work in mass, thermometry, electrical and dimensional areas, both nationally and internationally, and will continue to maintain this status in the future as well.

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## NEW AYURVEDIC PLASTER FOR THE LOCAL MARKET



Dr. Sirimal Premakumara presenting the "Lakshadeepa Ayurvedic Plaster" to the Commissioner of Ayurveda, North Western Province

In Ayurvedic medicine, different "Lephas" are used as external applications for a range of ailments such as inflammations (swellings), joint pains, arthritis, sprains, and various bone fractures. These applications are not in ready to use forms. A shelf top ready to use plaster would thus help both patients and medics immensely. It will also boost our export revenue from traditional Ayurvedic medications.

A request was made by the Wayamba Ayurvedic Department to the ITI to develop such a product using the traditional Lephas which are presently used. The challenge was readily taken up by the researchers at the Herbal Technology Section (HTS).

The researchers of the HTS developed an Ayurvedic plaster from "Lakshadeelephaya" and transferred the technology to the Wayambe Ayurvedic Department through a technology transfer agreement.

This innovation was a brain child of Dr. Sirimal Premakumara, Head of the Herbal Technology Section, and technical assistance for the development of the product was provided by Mr. Ushan Chanaka.

The product is a combination of Ayurveda concepts and Western medicine and is an easy and effective method of treating muscular pains and joint arches. The compounds present in the

medicinal preparation rapidly penetrate the affected area and bring about instant relief from pain.

A workshop was held on the 25th November 2008 to transfer the technology to the Department of Ayurveda, North Western Province. The provincial Ayurvedic Department is now ready to launch this product through the Ayurvedic doctors in the North Western Province.



Mr. Ushan Chanaka working on Lakshadeepa Plaster development



Lakshadeepa Plaster

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## ERRATUM NOTE

The article "National Science and Technology Award 2008" which appeared in the ITI Bulletin Volume 17 issue 1 should read as 'The team was lead by Mr. Saman Weeraratne' and not Mr. Lal Motha. Mr. Lal Motha is a team member. We apologize for the mis-representation.

## Advertisement Space

Advertisements could be inserted in the ITI Bulletin at a cost of Rs. 2000/- for a 9 cm x 4 cm strip. For reservations please contact, Head – Information Services Centre. T.P. 2698624. E-mail [dilmani@iti.lk](mailto:dilmani@iti.lk)

## NATURE'S WAY TO CONTROL MEALY BUG

The recent mealy bug outbreak in the country has threatened many agricultural crops as well as ornamental plants in almost all the areas, especially the Western province. The prevailing dry weather has further aggravated the problem. Controlling the mealy bug attack is the biggest problem that the agriculture sector of the country is now faced with.



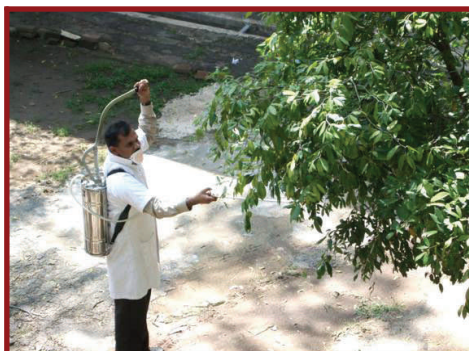
Mealy Bug Attacked Papaya Plant

While feeding on the sap, the mealy bug releases its toxic saliva causing various symptoms in the host plants. The attack manifests itself by causing severe malformation of shoots and leaves. Leaves become twisted and crinkled. Growth becomes stunted and shoot tips have a bushy appearance. Infested flowers dry and drop and fruits are not produced. Infested fruits are small and abnormally shaped, and may drop early, thus reducing production and marketability. Moreover they survive underneath the leaves, in the initial stages and hence are not visible. Mealy bug also exudes

a sugar solution which attracts ants and enhances the growth of mould causing a soot like appearance on the leaf.

Simple controlling methods are not very effective to this pest as it lives under a waxy cover which gives the pest a conducive environment for living and reproduction. Usage of synthetic pesticides is also not encouraged very much due to possible bad effects.

Having studied this, the Herbal Technology Section of the ITI has



Spraying Mealy Bug Killer

formulated a natural "Mealy Bug Killer" using aromatic plant extracts. Preliminary studies have revealed that the formulation is highly effective and large scale field trials are underway with the collaboration of the Department of Agriculture.

The product was presented to the Hon. Minister of Agriculture and Mahaweli Development, Mr. Maithreepala Sirisena and a trial application was made at his official

Before and after application of mealy bug killer for the control of mealy bug in Del leaves

residence at Wijerama Mawatha at the request of the Department of Agriculture. A further study for the proof of the efficacy of the formulated solution is now in progress at Homagama and Gannoruwa Agricultural Research Stations. The formulation can be obtained on request from HTS at an introductory price of Rs. 40/= per 750ml.

The research team which were responsible for this project consisted of Mr. K. R. Dayananda and Mr. R.M. Dharmadasa who are Senior Research Officers at the HTS.

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