

## **Status of Research on Lauki (Bottle Gourd)**

(As on 31st July 2011)

There is ample clinical evidence that Lagenaria exerts beneficial effect on Cardiovascular function, so that it can relieve patients of cardiac attacks. However this aspect lacks scientific evidence without which acceptance of this Therapy by Medical Profession, would be difficult. In order to obtain factual scientific position, the systematic scientific investigation was under taken.

Dr. Jitendra Deshpande, a Doctoral Research Scholar in Department of Pharmaceutical Sciences of Nagpur University is the first to carry out systematic research in biological actions of Lauki extracts. He observed that Lauki extracts exerts powerful antioxidant action and that the action is primarily located in the pericarp i.e. skin of the fruit. The extract lowers blood cholesterol & Lipids and induces enhancement of force of contraction and reduction in rate of contraction of heart. It enhances Haemoglobin concentration in blood and influences enzymes like SGOT & SGPT, which control lipid metabolism. It protects liver from damage due to toxic compounds and lowers blood sugar. He also observed that the juice of Lauki is unstable when exposed to atmosphere which makes it difficult to formulate it in ready to use dosage forms. Shri Anand Deshmukh continued the work conducted by Dr. Deshpande. He registered for Ph.D. degree at Birla Institute of Technology at Ranchi and continued research under the supervision of Prof. G.M.Panpalia. Unfortunately Dr. Panpalia passed away in June 2009. However Shri Deshmukh continued his research without any hindrance. Shri Anand Deshmukh conducted part of his research at Bhabha Atomic Research Institute, Mumbai and made a significant discovery that the extract of Lauki activates an Intracellular Protein factor called Nuclear factor Kappa B. Of further interest is the work of Shri Anand on a group of fifty subjects under the supervision of a medical team with approval of Ethical Committee for clinical trials at Nagpur. He confirmed the influence of Lauki juice on Lipid metabolism in human and further observed that Lauki enhances significantly 'Ejection Factor' of heart in human in addition to causing lowering of Blood Pressure for transitory period. Mr. Anand made several other interesting observation and is awaiting the result of his Doctoral Thesis.

Professor S.L.Bodhankar , Professor of Pharmacology at Bharti Vidyapeeth University, Pune is also engaged in guiding research on Lauki juice. His two students who are registered for Doctoral degrees have observed that Lauki juice can effectively counteract the toxic effects of some chemicals on cardiac muscles and function. Dr. Bodhankar and his associates have published their findings in research papers.

Mrs. Sampada Pandhare is another researcher who investigated cosmetic properties of Lauki fruit. Application of grated fruit of Lauki for about thirty minutes on skin can impart brightness to skin and also render the subject calm and fresh. She successfully incorporated the Lauki extracts in various types of creams and observed that regular application of this formulation can remove the ageing symptoms such as wrinkles and spots on skin. Mrs. Pandhare recently submitted her thesis on 'Cosmetic uses of Lauki and other natural substances' for Ph.D. degree in Cosmeticology in Nagpur University. Mr. Vikas Ingle and Abhijit Tayde, the Post Graduate (M.Pharm) students at College of Pharmacy, Pusad carried out research on formulation of Lauki juice in pharmaceutical formulation and could successfully produce to solid dosage forms which would be stable for at least a period of six months. They were awarded the degree of Master of Pharmacy for this work.

The research on various aspects of activity, mechanism of action and formulation of Lauki is in progress at Ranchi, Pusad and Pune and we hope that some interesting facts would be revealed in due course of time.

During the past few years some cases of death due to consumption of the juice of bitter Lauki were noticed. Prominent amongst them was the death of a scientist working in a National Laboratory at Delhi. Alarmed with these reports, the Ministry of Health of Govt. of India directed Indian Council of Medical Research (ICMR) to look into the matter and suggest a line of treatment for such toxicity. Dr. Toteja of ICMR undertook this work and during his investigation contacted Dr. Bodhankar, Hriday Mitra Mandal Nagpur, Shri Nafde and Dr. Dorle. Dr. A.K.Dorle was invited to attend the meeting of a committee of ICMR, held on 26<sup>th</sup> June 2011 at Delhi.

In the meeting of ICMR, Dr. Dorle explained the results of the research conducted by Hriday Mitra Mandal, Nagpur at various places. The other members explained their experiences of Lauki toxicity which included vomiting, purgation and intestinal bleeding leading to nausea and ultimately the death. It was agreed that the toxicity is related only to bitter Lauki and not with the ordinary sweet variety. It was resolved that extensive research should be conducted on chemistry, identification and toxicity including antidotes of bitter Lauki. Meeting also resolved to encourage research on other aspects of Lauki especially the work on cell line and intra-nuclear factors such as NF Kappa B etc., which is the extension of research conducted by Mr. Anand Deshmukh. Some members of the committee have now suggested that a task force may be constituted with a view to examine the beneficial effects of Lauki juice.

Hriday Mitra Mandal, Nagpur decided to pursue research on these aspects of Lauki juice. It distributed seeds of Lauki to several persons with a view to grow Lauki plants-climbers and to observe the effects of various factors on the quality of fruits. The Mandal is also in contact with persons in the vicinity of villages and forest areas where bitter Laukis are reportedly found. The climbers at this time are at early stages of growth. The experts from Mandal would visit these places when the fruits start appearing and examine properties of bitter fruits, if found, with special reference to their toxicity.

Research is never ending process and Hriday Mitra Mandal, Nagpur is committed to engage in research on Lauki with its best ability. It has decided to offer scholarships in form of loan to researchers who would be engaged in research on Lauki.