Effect of *Brahmi* and *Neem* on gastric ulceration and healing in experimental NIDDM rats

The pharmacologists at Department of Pharmacology and Pathology, Institute of Medical Sciences, BHU, Varanasi evaluated the effect of *Bacopa monnieri* (Linn.) Penn. (Hindi — *Brahmi*) and *Azadirachta indica* A. Juss. (Hindi — *Neem*) on the susceptibility of NIDDM rat's gastroduodenal mucosa to various ulcerogenic stimuli and on gastric ulcer healing.

Gastric ulcers were induced in normal/ NIDDM rats by various physical (2 hrs cold restraint stress and 4 hours pylorus ligation) and chemical agents (ethanol, 1 ml/200g, oral, 1 hr before; aspirin, 200 mg/kg, oral) and duodenal ulcers were induced by cysteamine (40 mg/200g). Ulcer healing activity was studied in gastric ulcers induced by acetic acid (50%) and HCl (0.6 M). The result indicated that in both, normal and NIDDM rats, *B. monnieri* extract (BME, 20-100 mg/kg) did not show any significant effect on blood glucose level, while *A. indica* (AIE, 250-1000 mg/kg) significantly decreased it. However, both BME (50 mg/kg) and AIE (500 mg/kg) showed significant anti-ulcer and ulcer-healing activities in normal and NIDDM rats. Further, the present results also indicated that the ulcer protective effects of BME were more pronounced in non-diabetic, while that of AIE was more in NIDDM rats. The anti-ulcer and ulcer-healing activities of BME and AIE may be due to their effects on various mucosal offensive and defensive factors, and correction of blood sugar level by AIE may help to have more ulcer protective effect in NIDDM rats [Dorababu et al, Indian J Exp Biol, 2004, 42(4), 389-397].

Cancer preventive potential of Bitter melon

The researchers at Radiation and Cancer Biology Laboratory, School of Life Sciences, JNU, New Delhi examined the cancer preventive potential of bitter melon or bitter gourd, *Momordica charantia* Linn. (Hindi — *Karela*) against benzo(a)pyrene induced fore-stomach tumourigenesis in murine model system. During experiment the fruit extract was tested against 3,4-benzo(a)pyrene [B(a)P] induced fore-stomach papillomagenesis in Swiss albino mice. The extract, in two concentrations, 2.5 and 5% of standard mice feed was used for the short-term and long-term studies. A significant decrease in tumour burden was observed in short and long-term treatment. Also, total tumour incidence reduced to 83.33% with 2.5% dose and 90.90% with 5% dose in short-term treatment, while in long-term treatment tumour incidence decreased to 76.92% with 2.5% dose and 69.23% with 5% dose.

The study strongly suggests the cancer preventive potential of bitter melon against fore-stomach tumourigenesis with no toxic effect even with long-term dietary supplementation. Its chemopreventive effect could be attributed to the modulation of enzymes involved in the carcinogen metabolism. Antimutagenic, antioxidant and anti-helicobacter pylori properties of the fruits might have also contributed to its cancer preventive action. However, further investigations are to be carried out to understand the chemopreventive effect in different tumour model systems [Gagan Deep et al, Indian J Exp Biol, 2004, 42(3), 319-322].
Leukaemia cell growth inhibitory properties of Onion powders

The scientist at Department of Food Science and Technology, Tajen Institute of Technology, Taiwan evaluated the free radical scavenging and leukaemia cell growth inhibitory properties of Onion powders treated by different heating processes. During experiment methanol extracts of onion powder dried by hot air (60°C), vacuum (35°C) and lyophilization (35°C) were used to study the effects of drying method on the quercetin composition and the subsequent antioxidative changes.

It was found that hot air-dried onion had higher radical scavenging activities in both DPPH and peroxide radicals than those of the freeze- and vacuum-dried onions. HPLC analyses showed that freeze- and vacuum-dried onions contained more quercetin glycosides, whereas hot air-dried onion dominated in aglycone. A strong cell proliferation inhibition activity in hot air-dried onion was observed for leukaemia cell lines CEM and U937, whereas freeze- and vacuum-dried onions gave comparatively moderate inhibition. Low cell proliferation inhibition was obtained in dried onions for leukaemia cell lines K562, P3HR-1 and Raji [Fu, J Food Sci, 2004, 69(1), SNQ50-SNQ54].

Pre-washing uncut Carrots with chlorine ensure sugar retention

The scientists at Institute of Food Technology of Hohenheim University, Germany analyzed quality of shredded, packaged carrots as affected by different washing treatments to ensure sugar retention in shredded and washed carrots and to improve the sensorial and microbial quality of packaged ready-to-eat produce.

During experiment different washing treatments with chlorinated and ozonated water were applied to carrots (Daucus carota Linn.) on an industrial scale. Quality of shredded carrots was determined by sensory evaluation and microbiological analysis. Washing shredded carrots resulted in increased sugar leaching and loss of sensorial quality, whereas pre-washing uncut carrots with chlorine ensured sugar retention, reduced microbial load and concurrently minimized cross-contamination. Comparable germ reduction was not achieved by pre-washing with ozone. The findings demonstrate that pre-washing uncut carrots with chlorine provide sufficient microbiological safety paired with improved sensorial properties [Klaiber et al, J Food Sci, 2004, 69(4), SNQ161-SNQ166].

Bitter gourd extracts inhibit uptake of glucose and amino acids

Momordica charantia Linn. (Bitter gourd; Hindi – Karela) has primarily been used for lowering blood glucose level in patients with diabetes mellitus. Scientists working at Department of Health Medical Sciences and Department of Chemistry, Faculty of Science, University of Mauritius, Reduct, Mauritius undertook studies to assess the possible biological properties of bitter gourd extracts on glucose, tyrosine and electrolyte transport across rat everted gut sacs in vitro. The aqueous extract of the fruit was found to inhibit primarily the uptake of glucose in a dose-dependent manner. Uptake of tyrosine was affected at high substrate concentrations only. The extract was also found to decrease the absorptive capacity of fluid across the small intestine and sodium ions. It is hypothesized that the effects of bitter gourd could involve a washout of glucose from the blood stream. Furthermore, it also provides evidence for possible laxative properties of bitter gourd [Mahomoodally et al, Biol Pharm Bull, 2004, 27(2), 216-218].