Radioprotection by extract of *Indian Podophyllum*

The most defined molecular antioxidants such as cysteine, cysteamine, WR-2721 etc have been demonstrated to render significant protection against radiation injuries but have been toxic by and large. In these circumstances it became necessary to find out non-toxic radioprotective agents. Herbal extracts contain compounds of two nature, many of them offer protection against reactive oxygen species (ROS) while others counter toxicity induced by effective radioprotective molecules.

Aqueous extract of rhizome of Indian Podophyllum (***Podophyllum hexandrum*** **Royle**) possesses antioxidant properties as seen through chelation and modulation of redox state of iron ions and these may primarily contribute towards its radioprotective manifestation. The antioxidant defence mechanism is beneficial in case of pathological conditions like acute leukemia, haemochromatosis, rheumatoid arthritis and also for recovery of normal tissue in case of chemotherapy and radiotherapy. ***P. hexandrum*** by virtue of its antioxidant activity can be usefully exploited for management of several diseases (Kumar & Goel, *Indian J Exp Biol*, 2000, **38**, 1003).

Packaging and storage of Large Cardamom

Large Cardamom (***Amomum subulatum*** **Roxb.**) is grown in eastern Himalayas particularly in Sikkim, Darjeeling and Assam hills. The dried fruits are commonly used as spices for flavouring food and in many house-hold medicines. During post-harvest processing considerable stress is given to protect its volatile oil content because there is long gap of about 3-4 months between processing, marketing and utilization. Suitable packaging and proper storage method can increase its shelf-life and ensure protection of flavour.

Large Cardamom is generally packed in gunny bags and stored in ware houses till it is marketed. Scientists of Central Food Technological Research Institute, Mysore investigated an economically functional package and storage for Large Cardamom. It includes drying of freshly harvested wet fruits by flue-curing method. Flue-curing is an indirect method of drying, carried out in a chamber having a labyrinth of flue pipes through which hot gases are passed. After flue-curing, moisture-sorption study, packaging and storage study, gas chromatography, sensory quality assessment of fruits and seeds and at last data analysis are done to achieve an economical method. The results of these studies revealed that Large Cardamom fruits having a moisture content of about 11.0% (ERH 60%) and held in LDPE 300 gauge polyethylene pouches at ambient temperature (27°C) have a shelf-life of 90 days which is adequate for most of the trade purpose (Naik *et al, J Food Sci Technol*, 2000, **37**, 577).

Solar-drying is best for spices

To improve the quality of spices and reduce drying time, solar radiation, which is inexhaustible has been found to be the best method. According to a study done by K.P. Jose and Dr C. M. Joy of the Sacred Heart College in Thevara in Kochi, use of solar dryers is the easiest way to dry agricultural products. Solar dryers with capacity from 15 Kg to 600 have been developed and this device is reported to be eco-friendly and cost effective (*Financial Express*, 21 March 2001).