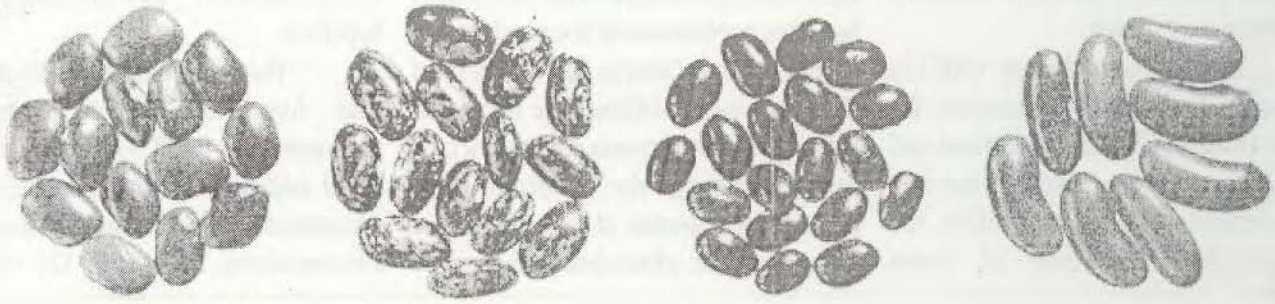
Pulses

Gas producing components of French Bean

Haricot or French Bean (***Phaseolus vulgaris* Linn.**) seeds are commonly used as pulse having low fat and the potential to decrease serum cholesterol concentration. The consumption of legumes is limited owing to production of flatulence, the possible cause of flatulence is considered to be the bacterial fermentation of indigestible oligosaccharides, raffinose, stachyose and verbascose. These oligosaccharides are not digested or absorbed, since the α-galactosidase required to complete the hydrolysis is not present in the human intestinal tract. Hence these carbohydrates are hydrolysed and fermented by intestinal bacteria, producing gases and short-chain fatty acids. To find out more about the specific origin of flatulence, an *in vitro* fermentation study was conducted on several combinations of extracted α-galactosides and soluble and insoluble fibres from three different varieties grown in American countries. Ten cooked samples were analyzed for α-galactoside, resistant starch and soluble and insoluble dietary fibre contents. It has been concluded that soluble fibre and α-galactosides are responsible for flatulence induced by the consumption of this legume (Granito *et al*, *J Sci Food Agric*, 2001, **81**, 543-550).



Radiotherapy

Effect of Brahma Rasayana on antioxidant system after radiation

Rasayanas are a group of non-toxic polyherbal preparation commonly used in Ayurveda in India to improve the health and longevity. *Rasayana* has been shown to stimulate both humoral and cell-mediated immunity in mice. It has antioxidant property *in vitro* and reduced the radiation clastogenicity in experimental animals. *Brahma rasayana* (BR) has been found to protect the haematological system in patients undergoing radiation and chemotherapy. One of the main ingredients in BR is ***Emblica officinalis* Gaerten** that has very high antioxidant potential *in vitro*. Rekha and others from Amala Cancer Research Centre, Thrissur evaluated the effect of BR on the endogenous antioxidant enzymes in normal mice and mice treated with radiation.

Oral administration of BR (50 mg/animal for 10 and 30 days) significantly increased the liver antioxidant enzymes such as superoxide dismutase (SOD), catalayse (CAT) and tissue and serum levels of reduced glutathione (GSH). Whole body irradiation suppressed the levels of SOD, CAT and GSH. Reduced activity of SOD, CAT and GSH was significantly elevated by the treatment with BR after radiation treatment. Similarly radiation exposure induced increase in serum and lipid peroxides was significantly reduced by further treatment with BR. The results indicate that BR could ameliorate the oxidative damage produced in the body by radiation and may be useful as an adjuvant during radiation therapy [Rekha *et al*, *Indian J Exp Biol*, 2001, **39**(11), 1173-75].

Radiotherapy

Hypericin as a photosensitizer for **photodynamic therapy**

Hypericin is a naturally occurring aromatic dianthraquinone from the plant St. John's wort (***Hypericum perforatum* Linn.**). It displays virucidal activity against several types of viruses, including the human immunodeficiency virus as well as antiproliferative and cytotoxic effects on tumour cells. Its virucidal and antitumour activity is enhanced in the presence of light.

Photodynamic therapy (PDT) is being used as an effective alternative for cancer treatment. Recently, US Food and Drug Administration approved the first photosensitizer drug photofrin for clinical PDT. Because of some disadvantages such as complexity, skin photosensitivity, and low absorption efficiency several new and promising photosensitizers have been chosen for experimental and clinical testing in the last few years.

Since fibrosarcoma represents a tumour type that is often resistant to current therapeutical procedures, research has been predominantly focussed on this type of tumour. Cavarga and others from Slovakia used C3H/DiSn mice implanted with mouse fibrosarcoma cell line G5:1:13 for examining the photoinduced antitumour potential of hypericin. They compared the photodynamic therapy efficacy with the topical and intraperitoneal administration of hypericin.

The experimental model showed that hypericin is a promising photosensitizer for PDT of superficial and small nodular malignancies including subcutaneous fibrosarcoma (Cavarga *et al, Phytomedicine*, 2001, **8**(5), 325-330].

Ashwagandha
possesses chemopreventive activity

***Withania somnifera* Dunal**, Ashwagandha, roots are well known for many medicinal properties. Its antioxidant property was also reported earlier but its chemopreventive efficacy has not been studied. Therefore, the scientists at All India Institute of Medical Sciences, New Delhi did an experimental work on the hydroalcoholic extract of the roots to assess its chemopreventive activity against 20-methylcholanthrene (MCA) induced fibrosarcoma tumours in Swiss albino mice. Oral treatment of animals with 400 mg/kg body weight of extract (one week before injecting 20-methylcholanthrene and continued until 15 weeks thereafter) significantly reduced the tumour incidence, tumour volume and enhanced the survival of the mice, compared with 20-methylcholanthrene injected mice. The tumour incidence was also delayed in the treatment group. The antioxidant and detoxifying properties of the extract may, at least in part, be responsible for the observed chemopreventive action. Thus the extract of the roots of Ashwagandha can be used as an adjuvant to local tumour excision and may increase the overall survival rate (Prakash *et al, Phytother Res,* 2001, **15**, 240-244).