

**Executive Summary of the UGC Minor Research Project  
Entitled**

**Action Profile of Certain Plant Extracts in Modification of Gamma Irradiation  
Response**

**Principal Investigator : Mrs .V.N.Wadekar. UGC letter No: 47-1677/10(WRO) dated 16<sup>th</sup> March 2011**

Natural herbal products are proved to be very efficient in managing numerous healthy aspects of human life . Natural antioxidant property is one of the most important property shown by the herbs, offered by various chemical constituents viz, flavanoids, phenols , alkaloids etc.

In the current studies , different herbs which are the main constituents of numerous herbal drugs products are first explored for their antioxidant feature and then for radioprotection against gamma irradiation. Antioxidants refer to the chemical entities which are the reducing agents which prevents or modify the damage because of oxidative stress .

Initial studies reveal the antioxidant properties of some of the commonly used herbs from western ghat region viz, *Bocopa moneri*, *Asparagus racemosus* ,*Tinospora cardifolia* ,*Withamia somnifera*, *Rubia cordifolia*, *Saraca indica* and *Evolvus alsinoids* etc.

Quatitative phytochemical studies for the presence of alkaloids ,phenols , flavanoids that are responsible for antioxidant property were evaluated and compared. In-vitro antioxidant studies were carried out by standard assays such as DPPH, ABTS and radical scavenging assays.

Out of the seven different herbal samples the herbs *Saraca indica* and *Evolvus alsinoids* showed maximum antioxidant action and hence explored further for their radioprotective feature. Radioprotective effect of ethanolic extracts of *saraca indica* and *Evolvus alsinoides* were evaluated on human white blood cells in vitro by observing gamma irradiation induced mutations studying DNA damage . Ethanol extracts of both herbs showed the protection against damage induced by gamma irradiation .

During natural radiation disasters such as accidents in nuclear reactors, industrial hazards involving radiation accidents as well as in case of natural and several man-made radiation exposures there are harmful gamma induced effects. In cancer treatment as a part of radiotherapy gamma radiations are used to kill cancerous cells. During this treatment the normal tissue is also exposed resulting in harmful damaging effects. The radioprotective feature of herbal drugs help in protecting the normal tissue from radiation induced damage. This is considered as prime goal in utility of herbal drugs in conjunction with radiation therapy .Hence the herbs those are showing radioprotective property pose a challenge in identification and characterization in herbal drug development and is the one step ahead towards formulating radioprotective drugs.