

New compounds that cause inhibition to various reactive oxygen species are from plants: A study on few selected plants

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Plants, fungi, algae and marine species are the main agents for the production of various secondary metabolites that are used in the regulation of variety of influences that occur in the body. At present pollution is a main culprit in the generation and propagation of various radical species to do damage to the living organism's organs and biochemical pathways. The free radicals are needed for the initiation of almost all reactions however excessive production of the radicals mediates several setbacks in biological systems. To study some of the effects of radical inducers the toxic molecules were given to avian and mammalian systems and studied their regulation after isolation of active ingredients from two types of plant systems such as *Azadirachta indica* and *Hybanthus enneaspermus*.

The *Azadirachta indica*, a Meliaceae family member, is known for its traditional folk medicine use in Ayurveda and Unani to cure many diseases including viral effects, allergies and fever. In fever radicals play a role for generation of temperature in the body due to the effect of function of oxygenases that convert polyunsaturated fatty acids into oxygenated molecules. The active compounds were isolated from *Azadirachta* seed kernels for inhibition of lipoxygenases. The bioactive principle was isolated, purified, crystallized and analyzed by using HPLC and spectroscopic techniques (IR, UV-VIS and NMR Spectroscopy). The effect of phenobarbital induced histological modification reversal was found in tissues after the treatment of isolated active principle of *Azadirachta* seed kernel. In addition to this the molecule was able to reduce the effect of lipoxygenase in rat tissues. Similar to above the effect of acrylamide and paracetamol induced xenobiotic transport protein, Glutathione S transferase, elevation was also showed suppression upon the treatment of an isolated molecule from *Hybanthus enneaspermus* in mice liver and testis, respectively. The molecule isolated from this plant using HPLC and phytochemical analysis showed suppression of oxidation of molecule by the elevation of peroxidases and catalases in mice tissues, liver, kidney and testis. The histological studies also revealed that these products can cure the cells from various insults and elevates the defense to biological systems.

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Biography

Dr Thyaga Raju Kedam has completed his PhD in 1988 from The Pennsylvania State University, USA and serving the Biochemistry Department of Sri Venkateswara University for the last 30 years. He was Head and Chairman BOS for four times, Director of Admissions of Sri Venkateswara University and currently academic council member of central university of Tamilnadu and coordinator of Pharmacy. He has published 70 publications in reputed journals, attended 60 conferences and guided 18 PhDs and still guiding ten more PhDs graduates.