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Protective effective of ginger extract on cyclophosphamide induced chromosomal aberrations in germ cells of Swiss albino male mice

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Herbs are gaining additional focus because of their less toxicity and high efficacy against a number of ailments. Epidemiological studies have shown that fruits, vegetables, spice and medicinal herbs are rich in antioxidants and other micronutrients that protect against diverse forms of chemically induced carcinogenesis, inhibit DNA damage, mutagenesis and lipid peroxidation. Cyclophosphamide (CP) is an anti-cancer alkylating agent. The metabolites of this compound can alkylate nucleophilic sites in DNA, RNA and protein. It induces DNA single strand breaks at molecular level in rat embryos in testicular cells. Further Cyclophosphamide is capable of inducing structural chromosomal aberrations in Chinese Hamster cells, in human chorionic villi and various stages of spermatogenesis in germ cells. Curcumin is a yellow pigment commonly used as a spice and food coloring agent is procured from rhizomes of *Curcuma longa* and is a major chemopreventive compound of turmeric. In the present study, the anti-mutagenic potential by curcumin has been evaluated using in *in vivo* assay in meiotic cells of male mice. Curcumin was given in 10, 15 and 20 mg/kg body wt. and assayed for chromosomal aberrations individually in the first set of experiment. The animals were maintained for 60 days and mice were scarified and meiotic preparations were made, stained with Giemsa stain according to the procedure of Evans et al., 1964. In the second set of experiment curcumin was given a dose of 10, 15 and 20 mg/kg body wt. of curcumin for seven consecutive days prior to CP treatment 50 mg/kg body wt., a significant induction of chromosomal aberrations were observed in germ cells of mice in CP administrated animals. However in curcumin supplemented animals no significant induction in chromosomal damage was recorded. In different curcumin supplemented groups, a dose dependent significant decrease in CP induced clastogenicity was recorded when compared to CP treated group. The incidence of aberrant cells was found to be reduced by three doses of curcumin. The obtained results clearly revealed the antigenotoxic potential of curcumin against CP induced chromosomal mutations in germ cells of mice.

Biography

Yadamma K has completed her PhD in Osmania University, India. Presently, she is working as a Senior Technical Officer in NCLAS at National Institute of Nutrition (NIN), Government of India, ICMR, New Delhi. She has successfully published two articles in international journals and presented various articles at national and international conferences.

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