

## **RADIATION DOSE RESPONSE AND DOSE MODIFICATION FACTOR OF *PHYLLANTHUS NIRURI* ON SWISS ALBINO MICE STANDARDIZATION OF RADIOPROTECTIVE EFFECT**

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This study was aimed to assess the optimum route administration for *Phyllanthus niruri* (family - Euphorbiaceae) alcoholic extract with maximum radioprotection by evaluating dose modification factor (DMF) and dose response on mice against different strengths of irradiation to establish the dosage profile. To optimize route of administration *P. niruri* alcoholic extract was administered via intraperitoneal (i.p), intramuscular (i.m), intravenous (i.v) and oral route 1 hr before 4 Gy irradiation and after 24 hr the percentage of aberrant cells were calculated. DMF was calculated by observing survival rate following whole body irradiated with 8, 9, 10 and 11 Gy radiation exposure with and without 200 mg/kg, i.p, *P. niruri* alcoholic extract before 1 hr of exposure. Radiation dose response effect of 200 mg/kg of *P. niruri* alcoholic extract was observed against 1, 2, 3 and 4 Gy gamma ray exposure by scoring different types of chromosomal aberrations from bone marrow metaphase plates. The i.p administered group showed significantly reduced aberrant cell percentage compared to i.m, oral, i.v and sham control group. DMF was calculated to be 1.12 as evaluated by radiation LD50 determination with and without *P. niruri* alcoholic extract at 200 mg/kg dose. *P. niruri* alcoholic extract significantly ( $P < 0.05-0.001$ ) reduced percent aberrant cell and major aberrations like breaks, rings and polyploidy against 4 Gy radiation. The dose of 200 mg/kg was found to have maximum radioprotective potential in i.p route. It showed DMF of 1.12 with improved survival rate, delayed occurrence of lethality and radiation sickness. Alcoholic extract of *P. niruri* decrease the complex aberrations like rings, dicentric and SDC indicating significant protection of bone marrow against double strand breaks and the multiple lesions in chromosomes. The optimum dose of *P. niruri* alcoholic extract is established to be 200 mg/kg, i.p., having safe and effective radioprotector efficiency.

## **BIOGRAPHY**

Indu Thakur, Biologist, Scientist, Educator completed her BSc from Barkatullaha University, Bhopal and MSc in Botany specialization from Biotechnology. She received her PhD. Degree in Life Sciences from, Barkatullaha University Bhopal under Senior Research Fellowship awarded by Indian Council of Medical Research New Delhi. She also received Junior research fellowship from Defense Research Development Organisation, New Delhi for 2 years. She served as a faculty in Indore Public School, Indore, and also worked as clinical hypnotherapist certified by California University, New Delhi. Her present research projects are focused on phytopharmacological work on active isolated constituents from Indian folklore medicine directed to explore their therapeutic potential and attempting on formulation of standardized product by following the modern herbal Ayurvedic monographs and international guidelines. Her field of research focuses on pharmacological screening, pharmacokinetic, pharmacodynamic and bioavailability studies, drug-food interactions, and standardization method development for herbals and chromosomal aberrations study on animal model.

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