

## Genoprotective Effect of *Lepidium sativum* L. Seed Methanolic Extract on Cyclophosphamide-Induced DNA Damage in Mice and Characterization of Its Flavonoidal Content

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**Abstract :** *Lepidium sativum* L, an annual herb that grows to 50 cm, is known as an important member of family Brassicaceae. Besides its nutritional value, the seeds were widely used in folk medicine for treatment of cough, asthma, and headache. It was also reported to possess hypocholesterolemic, anti-inflammatory, antidiarrheal, antimicrobial and anticancer activities. In this study, the genoprotective properties of *L. sativum* seed methanolic extract (LSME) were evaluated in vivo. Three groups of mice were given LSME for five consecutive days at the three dose levels 25, 50 and 100 mg/kg b.wt. The three groups were then injected intraperitoneally with cyclophosphamide at a dose of 20 mg/kg b.wt. to induce DNA damage. A group received only cyclophosphamide (20 mg/kg b.wt.) served as control. LSME significantly inhibited the DNA aberrations in mice caused by cyclophosphamide in a dose-dependent manner in the two groups that received LSME at 50 and 100 mg/kg b.wt. dose levels. The chromosomal aberrations' inhibitory indices were calculated as 18 and 31 in mice bone marrow cells and 27 and 48 in mice spermatocytes, respectively. Phytochemical examination carried out by us revealed that flavonoids were the main chemical constituents of LSME. The major flavonoids kaempferol, kaempferol-3-O-rhamnoside, kaempferol-3-O-glucoside, quercetin, and quercetin-3-O-glucoside were isolated and characterized. It was concluded that the genoprotective effect of LSME might be attributed to the presence of flavonoids which are well-known for their antioxidant properties.

**Keywords :** cyclophosphamide, flavonoids, genoprotective effect, *Lepidium sativum*

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