



RESEARCH ARTICLE

EVALUATION OF *ARGEMONE MEXICANA* FRUITS EXTRACT USING MICRONUCLEUS ASSAY IN MOUSE BONE MARROW CELLS

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Herbs have always been used as a common source of medicines. *Argemone mexicana* is a vital herbal plant used in Ayurveda as a traditional medicinal system of India. In the present investigation, the preventive effect of *Argemone mexicana* fruits extract was evaluated against cyclophosphamide-induced micronucleus formation in the mouse bone marrow cells. The single *i.p.* administration of *Argemone mexicana* fruits extract at the dose of 50, 100 and 150 mg/kg body weight, 24 h prior the administration of cyclophosphamide (at the dose of 50 mg/kg) have significantly prevented the micronucleus formations in a dose dependent manner in bone marrow cells of mice as compared to cyclophosphamide group. Therefore, plant fruits extract seems to have a preventive potential against CP-induced micronucleus formation in swiss mouse bone marrow cells.

Key words: *Argemone mexicana*, Mutagenicity, Micronucleus, Bone Marrow, Cyclophosphamide.

INTRODUCTION

Literature is enriched with several reports indicating cytotoxic potential of natural and synthetic compounds from diverse sources *viz.* sponges, plants and microorganisms (Devienne *et al* 2002; Gordaliza, 2010; Dahiya and Gautam, 2011) Micronuclei are cytoplasmic chromatin-containing bodies that appear in the cell like a small satellite nucleus around the cell nucleus, due to chromosome fragments or entire chromosomes that are not incorporated in main nucleus after cell division. The presence of micronuclei (MN) in cells is considered as a biomarker of damage to the DNA. The micronucleus test is an *in vivo* and *in vitro* short time screening cytogenetic test which is a widely used method for assessing genotoxicity of chemicals in organism (Heddle, 1973; Schmid, 1975; Meier *et al* 1999). *Argemone mexicana* Linn is known as Satyanashi which is medium

size tree belonging to family *Papaveraceae* and is a strong branched prickly annual, 60-90 cm in height with yellow latex and simple, sessile and spiny leaves. Flowers are large, bright yellow, terminal on the short leafy branches, fruits are prickly capsules, oblong-ovoid, opening by 4-6 valves, seeds are numerous (Dwivedi *et al* 2008). The seeds contain 22-36% of pale yellow non-edible oil, called *Argemone oil* or *Katkar oil*, which contains the toxic alkaloids sanguinarine and dihydrosanguinarine. The plant contains alkaloids such as berberine, protopine, sarguinarine, optisine, chelerytherine etc. The seed oil contains myristic, palmitic, oleic, linoleic acids etc. (Mukherjee and Namhata, 1990). According to Ayurveda, the plant is diuretic and purgative which destroys worms. It cures leprosy, skin-diseases, inflammations and bilious fevers (Satpathy and Panda, 1992). The present