

***In vitro* cytotoxicity of extracts and fractions from areial parts of *Calotropis procera* against CNS cancer cell line**

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Calotropis procera (Ait.) R.Br., a popular medicinal species in Indian system of medicine, is widely used for the treatment of various diseases. In the present investigation the cytotoxicity of the three extracts and their fractions from aerial parts of *Calotropis procera* was evaluated against central nervous system (SNB-78) human cancer cell line. The results showed that hydro-alcoholic extract has more potential at three different concentrations of 10, 30 and 100µg/ml, among all the three extracts viz., alcoholic, hydro-alcoholic and aqueous extracts. On evaluation of the various fractions, n- butanol fraction of both hydro-alcoholic and alcoholic extracts had shown antiproliferative activity against human cancer cell line of central nervous system (SNB-78) at three different concentrations of 10 and 30µg/ml. Aqueous extract was found to be least active.

Key words : *Calotropis procera*, Aerial parts, Extracts, Fractions, Cytotoxicity, Human cancer cell line.

INTRODUCTION

Since medieval times, plants have been the source of medicines for the treatment of diseases. Regardless of the availability of a wealth of synthetic drugs, plants remain – even in the 21st century – an integral part of the health care in different countries, especially the developing ones. Developing countries have a rich flora of medicinal plants that can be potential sources of new drugs and new biologically active substances (Kirtikar and Basu, 1993). International efforts and co-operation is needed to exploit these vast sources and biological evaluation of these medicinal plants.

Calotropis procera (Ait.) R.Br. (*Asclepiadaceae*) is a shrub, reaching 15 feet height and found in various parts of India. The principle constituents are starch, mucilage, a bitter principle (mudar) and a small quantity of acrid resin. Mudar is an alternative, tonic and diaphoretic, and large doses emetic. It is said to have employed with the benefit in numerous obstinate cutaneous diseases, syphilitic affections, dysentery, diarrhea and chronic rheumatism (Robert and Henry, 2002). *C. procera* is known to contain cardio active glycoside calotropine which has shown an antitumor effect in vitriol on human epidermoid carcinoma cells of the rhinopharynx, it also acts as expectorant and diuretic (Khanzada *et al.*, 2008). The root extract of *C. procera* has been found to produce a strong cytotoxic effect on COLO 320 tumor cells (Smit *et al.*, 1995). The chloroform-soluble fraction of its roots, ethanolic extract

of its flowers and aqueous and organic extracts of its dried latex also exhibit a strong anti-inflammatory activity in animal model of acute and chronic inflammation (Arya and Kumar, 2005). This study aims to evaluate the cytotoxic potential of *Calotropis procera* against human colon cancer cell line.

MATERIALS AND METHODS

Collection of plant material:

Aerial parts of *Calotropis procera* was collected locally from Parmandal area of Jammu in the month of December and was authenticated at source by Dr. B.K. Kaphai taxonomist of the institute. A voucher specimen has been deposited at the herbarium of the Institute vide IIM collection No.17600, Acc. No. 194731.

Processing of plant material:

Dried powdered plant material of the *C. procera* was soaked in absolute alcohol and was extracted in Soxhlet extractor and then concentrated to dryness under reduced pressure. Similarly, hydro-alcoholic (1:1) extract was prepared by percolating another lot of dried powdered material, plant material with 50% of alcohol (in water) and process was repeated. For the preparation of aqueous extract, the dried powdered plant material was heated with distilled water on steam bath for 2 hours, the supernatant was decanted and filtered through celite powder and the process was repeated four times, pooled extract was concentrated on rotavapour and freeze dried.