



RESEARCH ARTICLE

IN VITRO CYTOTOXIC ACTIVITIES OF METHANOLIC EXTRACT OF *MIMOSA PUDICA*

Srikanta Chowdhury^{1*}, Dibyajyoti Saha² and Swati Paul²

¹Department of Biochemistry and Molecular Biology, University of Chittagong, Chittagong, Bangladesh

²Department of Pharmacy, BGC Trust University, Chittagong, Bangladesh

*E-mails: srikanta.cu@gmail.com, saha.dibyajyoti@gmail.com

Tel.: +88-01717868519

Received: March 16, 2012 / Revised: April 25, 2012 / Accepted: April 28, 2012

The present research was conducted to investigate the cytotoxic activities of methanolic extract of plant of *Mimosa pudica*. Cytotoxic activity was evaluated using brine shrimp lethality bioassay. For the determination of cytotoxicity, seven different concentrations (80, 100, 200, 400, 600, 800 and 1000 $\mu\text{g/ml}$) of methanol extract of *Mimosa pudica* were used. LC_{50} value of methanolic extract of *Mimosa pudica* was found to be 2.6621 $\mu\text{g/ml}$. Methanolic extract of *Mimosa pudica* showed lethality in a dose reliant conduct. More exclusively 0%, 10%, 30%, 50%, 80% and 100% mortality were observed at the concentration of 80, 100, 200, 400, 600, 800 and 1000 $\mu\text{g/ml}$, respectively. The brine shrimp lethality bioassay results suggest that the plant can be a promising source of anticancer compounds.

Key words: Cytotoxicity, Brine shrimp lethality bioassay, *Mimosa pudica*, Mimosaceae.

INTRODUCTION

In the absence of an efficient primary health care system, traditional medicine occupies a central place in the provision of health care especially among rural communities of developing countries. The strong historical bond between plants and human health is well substantiated by plant species diversity and related knowledge of their use as herbal medicines. Lately, the uses of herbal medicines are increasing rapidly in developed countries too. As therapeutic uses of plants continued with the progress of civilization and development of human knowledge, scientists endeavored to isolate different chemical constituents from plants, put them to biological and pharmacological tests and thus have been able to identify and isolate therapeutically active compounds, which have been used to prepare modern as well as herbal medicines (Nahak and Sahu, 2010). Literature has shown several cases indicating cytotoxic potential of natural and synthetic compounds from diverse sources (Dahiya and Gautam, 2011; Jain *et al* 2011).

Mimosa pudica (Chhui-mui or sensitive plant or touch-me-not), is a short lived ever green shrub which can be treated as an annual or perennial herb (**Figure 1**).

Peculiar movement of leaflets that are sensitive to touch, makes it as an interesting plant (Ghani, 1998; Vaidyaratnam, 2001). Its fem like leaves close up and droop down whenever touched either by hand or by any object, living or non-living. It is due to the specific characteristics of its leaves that mimosa is regarded as a plant of high ornamental value. It grows to height of 5 ft and spreads around 3 ft.

Leaves are bipinnate, sensitive to touch, pinnae 1-2 pairs, leaflets 10-20 pairs, linear, glabrous, 9-12 mm long and 1.5 mm wide. Flowers head small, punduncle up to 2.5 cm long, globose, axillary, pink, purple; calyx, campanulate; petals, crenate towards base. Pods 1.5-2.5 cm long, closely prickly on the sutures. Stems are red-brown prickly. Seeds are bristles on seep pod cling to fur and clothing about 2 mm broad rounded, brown.