

Abstract 49 – Paper ID: 028**Evaluation Of Cytotoxic Activity of fruit pericarp extract of Soapberry (*Sapindus mukorossi* Gaertn) on Human cancer cell lines using Bioassay Guided Fractionation**

Chingtham B^{1,2}, Robinson Singh A¹, Shanjukumar Singh L¹

¹Cancer and Molecular Biology Laboratory, Department of Biotechnology, Manipur University, Imphal, Manipur, India

²Department of Biotechnology, S. Kula Women's College, Nambol, Manipur, India

Email: binapanichingtham1@gmail.com

Abstract

Sapindus mukorossi Gaertn (SM), commonly known as soapberry, is a member of the Sapindaceae family. It is a large deciduous tree widely distributed in tropical and subtropical regions of Asia and is a valuable medicinal plant which has recently been reported to have cytotoxicity properties. However, detailed investigation of its anticancer activity on methanolic extract has not been reported yet. SM plant samples (fruit pericarp) were collected and further extracted using soxhlet apparatus. Sequential extraction was carried out using different solvents followed by bioassay-guided purification using preparative HPLC and MTT assay. Two human cancer cell lines, cervical cancer cell line HeLa cells and lung adenocarcinoma cell line A549 cells were used for the study. The IC₅₀ value of the methanolic crude extract on HeLa cells and A549 cells were determined as 56.43 ng/ μ l and 71.37 μ g/ml respectively. Colony forming assay, Comet assay and DAPI staining assay were used for analysis of cell proliferation and apoptotic activities of the cell lines after treatment. Western blot analyses also revealed that the crude extract induced cleavage of PARP and caspase 7 in HeLa cells, however caspase 3 cleavage was not observed. It also suggested that SM extract induces apoptosis in a dose-dependent manner through PARP and caspase 7 pathway in the cervical cancer cells. Furthermore, reduced cell viability and increased apoptosis were also observed in treated A549 cells; however, Western Blot analyses revealed that SM did not activate caspase 3 and did not deactivate PARP, suggesting that SM-induced apoptosis in lung cancer is independent of the caspase/PARP pathway.

Therefore, the present study indicates that the crude extract of SM fruit exhibits antitumour bioactivity and provides insights into its potential pharmacological application as an antitumour agent.

Keywords: *Sapindus* extract, HeLa, A549, antitumour, apoptosis