

Antitumor Activity of *Gnetum gnemon* leaf extract in Dalton's lymphoma ascites (DLA) bearing mice model

**Munmi Gogoi, Namram Sushindrajit Singh and
Akalesh Kumar Verma**

Department of Zoology, Cotton University, Assam

Corresponding E-mail : gogoi70@gmail.com

The objective of this study was to investigate the antitumor potential of the methanolic leaf extract of *Gnetum gnemon* (GG) against Dalton lymphoma Ascites (DLA) tumor in Swiss albino mice. The antitumor activity of the methanolic leaf extract was assessed in Swiss albino mice with DLA cell lines at doses of 200 and 400 mg/kg body weight, administered intraperitoneally. The results were compared with cisplatin (reference standard) over a 14-days period. After treatment mice were sacrificed and the antitumor activity was studied using different parameters such as body weight, tumor volume, mean survival time, %ILS, hematological and histopathological parameters. In addition, the morphological changes in tumor cells were studied to ascertain the mechanism of cell death, apoptosis using scanning electron microscopy (SEM) analysis. GG leaf extract showed cytotoxicity in DLA cells in a dose dependent manner and also exhibited a significant decrease in the body weight, tumor volume followed by increase in survival time and lifespan of tumor bearing mice. Haematological profile was reverted to the normal level in extract treated mice. The histological studies of liver and kidney revealed only mild toxicity when compared to normal and standard. Apoptosis and SEM study indicates the treatment of DLA cells significantly altered the morphological structures. The results showed that the methanolic extract of *G. gnemon* has a potent antitumor activity. Further, molecular level study is required to explore the possible mode of action of bioactive compounds from the said plant.

Keywords: Apoptosis; Body weight; Cisplatin; Histopathology; Toxicity