

## Assessment of the Effect of Ethanolic Leaf Extract of *Annona squamosa* L. on Den Induced Hepatocellular Carcinoma in Experimental Animals

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**Abstract :** *Annona squamosa* Linn, commonly known as Sugar apple, belonging to the family Annonaceae, is said to show varied medicinal effects, including insecticide, antiovolatory and abortifacient. The alkaloid and flavonoids present in *Annona squamosa* leaf has proved to have antioxidant activity. The present work has been planned to investigate the effect of ethanolic leaf extract of *Annona squamosa* leaf on Den Induced wistar albino rats. The study was carried out to analyze the biochemical Parmeters like Total Proteins, Bilirubin, Enzymatic and Non -Enzymatic enzymes, Marker enzymes and Tumor markers in serum and also the histopathological studies in liver is carried out in control and DEN induced rats. Supplementation of ELAS (Ethanolic Leaf Extract Of *Annona squamosa*) reduced the liver weight and also reduced the tumour incidence. Chemoprevention group showed near normal values of bilirubin when compared with the control rats. Total protein was decreased in the cancer bearing group and on treatment with the extract the levels of protein were restored. Both in pre and post treatment group, the activities of enzymatic antioxidants such as superoxide dismutase, catalase, and Glutathione peroxidase were increased but in pre treated animals it was more effective than post treated animals. The non- enzymatic antioxidants such as vitamin C and vitamin E were brought back to normal level significantly in post and pre treated animals. Activities of marker enzymes such as SGOT, SGPT, ALP,  $\gamma$  GT were significantly elevated in the serum of cancer animals and the values returned to normal after treatment with the extract suggesting the hepato protective effect of the extract. Lipid peroxide was found to be elevated in the cancer induced group. This condition was brought back to the normal in the pre and post treated animals with ELAS. Histological examination also confirmed the anti- carcinogenic potential of ELAS, Cancer induced groups had a triple fold increase in their AFP values when compared to other groups. DEN treatment increased the level of AFP expression while ELAS partially counteracted the effect of it. So the scientific validation obtained from this study may pave way to many budding scientists to find new drugs from *Annona squamosa* for various ailments.

**Keywords :** *annona squamosa*, biochemical parmeters, cancer, leaf extract

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