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## Phytochemical screening, proximate analysis, lethality studies and anti-tumor potential of *Annona muricata* L (Soursop) fruit extract in *Rattus norvegicus*

Abbah Okpachi Cristopher, Obidoa O and Omale J  
Kogi State University, Nigeria

Prostate tumor is fast becoming a leading cause of morbidity and mortality in human male adults with 50 percent of men aged 50 years and above having histological evidence of the benign tumor. The study was set out to undertake phytochemical screening and proximate analysis of the pulp of *A. muricata* fruit Soursop to determine the acute toxicity of the fruit pulp extract and its effect on male albino Wistar rats with concurrent induction of experimental benign prostate hyperplasia (BPH). Eighteen rats (average weight of 100 g) were used for the lethality studies and were orally administered graded doses of aqueous extracts of the fruit pulp up to 5000 mg/kg body weight. Twenty five rats weighing 150-200 g were divided into five groups of five rats each for the tumor studies. The groups included four controls: Hormone control, HC, which took Testosterone, T and Estradiol, E2 only, in olive oil as vehicle; Vehicle control, VC; Soursop control, SC, which received the extract only; VS, Vehicle and Soursop and the Test group, TG (500 mg/kg b.w.). All rats were dosed orally. Tumor was induced with exogenous Testosterone propionate:Estradiol valerate at 300 µg:80 µg/kg b.w., respectively in olive oil, administered subcutaneously in the inguinal region of the rats on alternate days for 21 days. Administration of the fruit pulp at graded doses up to 5000 mg/kg resulted in no lethality even after 72 hours. Results from tumor studies revealed that the administration of the fruit extracts significantly ( $p < 0.05$ ) reduced the relative prostate weight of the TG compared with the HC, with values of  $0.006 \pm 0.001$  and  $0.010 \pm 0.003$  respectively. Treatment with vehicle, soursop and vehicle with soursop caused no significant ( $p > 0.05$ ) change in prostate size with their respective relative prostate weights being  $0.002 \pm 0.001$ ,  $0.004 \pm 0.002$  and  $0.002 \pm 0.001$  compared with TG. Also, treatment with *A. muricata* fruit extract significantly decreased ( $p < 0.05$ ) serum prostate specific antigen, PSA, in TG compared with HC, with values  $0.055 \pm 0.017$  and  $0.194 \pm 0.068$  ng/ml respectively. Furthermore, *A. muricata* administration displayed Testosterone boosting, Estradiol lowering and consequently testosterone-estradiol ratio increasing potential at the end of the 21 days. The preventive property of soursop against experimental BPH was corroborated by histological evidence in this study. The study concludes that *A. muricata* fruit holds a great potential for benign prostate tumor prevention and possibly, management.

### Biography

Abbah Okpachi Cristopher has completed his degree in Biochemistry at the Kogi State University, Nigeria in 2003 and a Master's degree in Biochemistry (Parasite Biochemistry and Ethnopharmacology) from the University of Ilorin, Nigeria in 2008. For his PhD, he is working on efficacy and safety of *Annona muricata* fruit pulp in animal models with experimental prostate hyperplasia at the Kogi State University, Anyigba, Nigeria, where he also works as Lecturer. He has over 15 papers in reputable journals to his credit. His research interests are medicinal plants, toxicology, environmental management and toxicology.

[ocabbah@yahoo.co.uk](mailto:ocabbah@yahoo.co.uk)

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