

Post-traumatic stress disorder and the toxicology of *Cannabis sativa*

Bruno O Onyemegbulem¹, Onunekwu O Charles¹, Yusuf N Omeh¹ and J C Aguiyi²

¹University of Jos, Nigeria

²Michael Okpara University of Agriculture Umudike, Nigeria

Many young men, women and even the elderly are addicted to Cannabis intake abuse despite its predictable toxicological consequences. In this study we studied the toxic effects of oral administration of methanol extract of *Cannabis sativa* seeds using total of forty male Wistar rats. Animals randomized were into five groups (n=8 rats) of approximately equal weight. Group-1 received 100 mg/kg of the extract, group-2 received 200 mg/kg of the extract, group-3 received 300 mg/kg dosage of the extract, group-4 received 2 ml of virgin olive oil (vehicle control) and group-5 received distilled water (normal control) for 14 days. The rationale behind the vehicle control group is to show that the vehicle did not have any extra cytological/histological effect. The proximate properties show: Moisture content ($6.69 \pm 0.14\%$), protein content ($19.10 \pm 0.01\%$), ash content ($11.84 \pm 0.02\%$), fat ($19.33 \pm 0.00\%$), crude fiber ($18.87 \pm 0.00\%$), carbohydrate (43.04%), dry matter ($80.91 \pm 0.14\%$) and oil absorption capacity ($1.87 \pm 0.00\%$). The anti-nutrients were as follows: alkaloids (3.15 ± 0.01 mg/100 g), flavonoids (2.82 ± 0.01 mg/100 g), saponins ($6.10 \pm 0.01\%$), tannins (2.14 ± 0.01 mg/100 g), cyanogenic glycosides (0.10 ± 0.01 mg/100 g) and phenols (0.27 ± 0.01 mg/100 g). The mineral content of the sample were potassium (13.73 ± 0.01 mg/100 g), phosphorus (10.00 ± 0.02 mg/100 g), sodium (17.53 ± 0.01 mg/100 g), calcium (14.65 ± 0.01 mg/100 g), magnesium (09.67 ± 0.01 mg/100 g), zinc (2.00 ± 0.01 mg/100 g) and Iron (1.00 ± 0.01 mg/100 g). Result for AST was significantly ($p < 0.05$) higher in group-2 (57.00 ± 13.00 IU/L) and group-3 (59.33 ± 10.53 IU/L), when compared with the normal control group-5 (31.33 ± 1.53 IU/L). Significantly ($p < 0.05$) higher serum ALT was observed in treatment group-2 (50.00 ± 12.52 IU/L) and group-3 (56.33 ± 10.21 IU/L). The results for kidney function, shows significantly ($p < 0.05$) higher serum urea concentration in group-3 (13.75 ± 2.41 mg/dl) when compared with the normal control group (8.75 ± 1.60 mg/dl). Serum creatinine concentration was significantly ($p < 0.05$) higher in group-2 (2.25 ± 1.18 mg/kg) and group-3 (2.38 ± 1.57 mg/kg) when compared with the normal control group (1.09 ± 0.13 mg/kg). Significantly ($p < 0.05$) higher SOD values was obtained in group-3 (72.64 ± 5.90 mg/kg) when compared with normal control group (19.62 ± 4.26 mg/kg). There was no significant ($p < 0.05$) difference in total serum protein concentration in all groups when compared with the normal control group. The histological result shows that the oral administration of *Cannabis sativa* induced pronounced inflammation of the hepatic and renal tissue in group-3 when compared with the normal control group. In conclusion, the study showed that oral administration of *Cannabis sativa* caused dose dependent hepatorenal toxicity.

Biography

Bruno O Onyemegbulem is the specialist of philosophy. He is associated with the African Center of Excellence in Phytomedicine Research and Development University of Jos as a research fellow. He is the member of National Association of Mathematical Physics (NAMP), Nigerian Mathematical Society (NMS) and Nigerian Society for Mathematical Biology (NSMB). He is the author of "A Mathematical Modelling of the Effect of Treatment in the Control of Malaria in a Population with Infected Immigrants".

charlesonunekwu@outlook.com
brunomaths1@yahoo.com