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Assessment of biochemical safety and anti-hepatitis B viral activity of *Vitex doniana* and *Lophira alata* used in the treatment of HBV induced hepatitis

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Assessment of biochemical safety and anti-hepatitis B activity of ethanol stem bark extracts of *Vitex doniana* and *Lophira alata* in Wistar rats was carried out. 42 albino rats were used for the study. The animals were divided into six groups of seven animals each. Groups 2-6 were inoculated with hepatitis-B virus. Group-1 and 2 served as normal and positive controls respectively and were given distilled water. Group-3 received 300 mg/kg BW of anti-retroviral drug, while group-4 received 244 mg/kg BW of *Vitex doniana*, group-5 received 244 mg/kg BW of *Lophira alata* and group-6 received combination of *Vitex doniana* and *Lophira alata* both at 244 mg/kg BW. The treatment was administered twice daily for 90 days. Results of biochemical indices determination revealed a significant ($p<0.05$) increase in AST activity in group-6 compared with normal controls but was significantly lowered when compared with positive control. However, ALT activities in group-5 showed a significant ($p<0.05$) decrease while that of group-6 was significantly ($p<0.05$) increased compared with controls. ALP activities showed significant ($p<0.05$) reduction in all treatment groups compared with the positive control. Total protein, globulin and albumin showed significant ($p<0.05$) increase in treated groups compared with controls. Significant ($p<0.05$) decreased was observed for blood urea nitrogen in treated groups compared with positive control but compares well with normal control. However, the creatinine levels of groups IV, V and VI were significantly ($p<0.05$) lowered compared with controls. Hematological indices assessed revealed no significant ($p>0.05$) changes in treated groups compared with controls. Results of serum electrolytes assayed revealed no significant ($p<0.05$) changes for K+, Na+, Cl- and HCO3- in groups-3 and 4 compared with controls but insignificant ($p<0.05$) increased were observed in group-6 at ($p<0.05$). The DPPH and FRAP anti-oxidant results showed that *Vitex doniana* has high anti-oxidant power which compared well with the standard (vitamin C) and the degree of its anti-oxidant properties was noticed to increase with increased in concentration of the extract but this trend was not observed for *Lophira alata* as it displayed a lower anti-oxidant potential compared with vitamin C. Lipid profile results revealed that the treatments reduced TC, HDL-C and LDL-C values for groups-3, 4, 5 and 6 significantly ($P<0.05$) while the levels of TG and VLDL-C in these groups were found to increase compared with normal control. Histopathological investigation revealed no serious pathological changes in the liver, spleen and kidneys of animals in groups treated with *V. doniana* and the combined extracts of *V. doniana* and *L. alata*. However, slight pathological changes were noticed in the liver and kidneys of animals in group-5 which received *L. alata* compared with the controls. A drastic reduction in viral load in treatment groups with more reduced value in combined treatment group. Finally, the ethanol stem bark extract of *L. alata* and *V. doniana* had varying impacts on biochemical indices investigated. Co-administration in the treatment of HBV-induced hepatitis in Wistar rats is relatively safe and effective at the dose investigated and can be a candidate for the development new drug.

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