

Evaluation of Anti-Typhoid Effects of *Azadirachta indica* L. Fractions

Authors : A. Adetutu, T. M. Awodugba, O. A. Owoade

Abstract : The development of resistance to currently known conventional anti-typhoid drugs has necessitated search into cheap, more potent and less toxic anti-typhoid drugs of plant origin. Therefore, this study investigated the anti-typhoid activity of fractions of *A. indica* in *Salmonella typhi* infected rats. Leaves of *A. indica* were extracted in methanol and fractionated into n-hexane, chloroform, ethyl-acetate, and aqueous fractions. The anti-salmonella potentials of fractions of *A. indica* were assessed via in-vitro inhibition of *S. typhi* using agar well diffusion, Minimum Inhibitory Concentration (MIC), Minimum Bactericidal Concentration (MBC) and biofilm assays. The biochemical and haematological parameters were determined by spectrophotometric methods. The histological analysis was performed using Haematoxylin and Eosin staining methods. Data analysis was performed by one-way ANOVA. Results of this study showed that *S. typhi* was sensitive to aqueous and chloroform fractions of *A. indica*, and the fractions showed biofilm inhibition at concentrations of 12.50, 1.562, and 0.39 mg/mL. In the in-vivo study, the extract and chloroform fraction had significant ($p < 0.05$) effects on the number of viable *S. typhi* recovered from the blood and stopped salmonellosis after 6 days of treatment of rats at 500 mg/kg b.w. Treatments of infected rats with chloroform and aqueous fractions of *A. indica* normalized the haematological parameters in the animals. Similarly, treatment with fractions of the plants sustained a normal antioxidant status when compared with the normal control group. Chloroform and ethyl-acetate fractions of *A. indica* reversed the liver and intestinal degeneration induced by *S. typhi* infection in rats. The present investigation indicated that the aqueous and chloroform fractions of *A. indica* showed the potential to provide an effective treatment for salmonellosis, including typhoid fever. The results of the study may justify the ethno-medicinal use of the extract in traditional medicine for the treatment of typhoid and salmonella infections.

Keywords : *Azadirachta indica* L, salmonella, typhoid, leave fractions

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