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Evaluation of Phytochemical and Antidiarrhoeal Activity of Butanol Fraction of Terminalia avicennioides Leaf in Swiss Albino Rats

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Abstract : The study was undertaken to evaluate the phytochemical constituents of extracts of Terminalia avicennioides leaf and the antidiarrhoeal effect of n-butanol fraction of the leaf extract in Swiss albino rats infected with Salmonella Typhimurium and Escherichia coli. Ethanol crude extract of Terminalia avicennioides leaf was dissolved in 1.5 liters of sterile distilled water. The extract solution was partitioned with 250 ml each of chloroform, ethyl acetate and n-butanol solvents (1:1v/v) to obtain soluble fractions from the extract. The leaf extract and its fractions were screened for the presence of phytocompounds using standard analytical methods. The antidirrhoeal activity of n-butanol fraction was evaluated in Swiss albino rats using standard methods. The results of phytochemical screening of extract of Terminalia avicennioides leaf and its fractions, revealed the presence of carbohydrates, alkaloids, tannins, flavonoids, saponins, steroids, triterpens, glycosides and phenols. The results of in vivo activity showed that 60 % of each group of rats infected with 2.0 x 108 cfu/ml viable cells of S. Typhimurium and 2.0 x109 cfu/ml viable cells of E. coli manifested the symptoms of diarrhoea, 72 hours after the rats were challenged with bacteria. Other symptoms observed among the infected animals included, loss of appetite, loss of weight, general body weakness and 40 % mortality in S. Typhimurium infected non treated group of rats. Similarly, 60 %, and 20 % mortality was observed among E. coli infected none treated and E. coli infected antibiotic (metronidazole) treated groups of rats respectively. However, there was a reduction in the number of infected rats defecating watery stools over time among all the infected rats that were treated with n-butanol fraction of the leaf extract and mortality was also not observed in the group, indicating high efficacy of n-butanol fraction of T. avicennioides leaf. The results also indicated that n-butanol can be used as alternative source of antidiarrhoeal agent in the treatment of diarrhoea caused by Salmonella Typhimurium and Escherichia coli. In the light of this, there is a need for further research on the mechanism of action of the candidate fraction of T. avicennioides leaf which could be responsible for the observed in vivo antibacterial activity.

Keywords : antidirrhoeal effect, phytochemical constituents, swiss albino rats, terminalia avicennioides
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