Phytochemical and antibacterial study of stem extracts of *Euphorbia heterophylla* on some enteric bacteria

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Abstract
A study was carried out to determine the phytochemical components and antibacterial activity of *Euphorbia heterophylla* crude extracts on four enteric bacteria namely; *Salmonella typhi*, *Shigella flexneri*, *Escherichia coli* and *Proteus vulgaris*. The isolates of *Salmonella typhi*, *Shigella flexneri*, *E.coli* and *Proteus vulgaris* were subjected to antimicrobial susceptibility test using agar diffusion technique. Phytochemical tests of the *Euphorbia heterophylla* crude extracts revealed the presence of starch, flavonoids, alkaloids, saponins and tannins. Methanolic and aqueous crude extracts produced clear zones of inhibition such as, 8.33±0.67 6.33±0.88 7.00±1.15 7.67±0.33 and 5.67±1.20 5.33±0.67 6.00±0.58 5.33±0.33; 10.67±1.21 10.33±0.90 6.67±1.40 9.67±1.67 and 9.67±1.22 8.67±0.86 9.67±1.20 10.33±0.33; 14.00±0.60 12.00±1.15 12.33±1.45 12.00±1.00 and 12.33±0.90 11.33±0.33 11.67±1.20 11.00±1.00; 16.33±0.33 15.33±0.33 15.67±0.90 15.33±1.20 and 14.67±0.33 14.00±0.60 14.33±0.33 14.00±0.00, at concentrations ranging from 50 to 200mg/ml. In vivo antimicrobial assay revealed that the mice treated with the crude methanolic and aqueous extracts, after being infected with the various test organisms, survived and showed mild pathological effects. Similarly, untreated mice (control) died after 48 hours of inoculation with *Salmonella typhi*, *Shigella flexneri*, *E.coli* and *Proteus vulgaris*. *Euphorbia heterophylla* based on the methanolic and aqueous extracts activity, could be a potential source for the treatment of diseases associated with enteric organisms such as *Salmonella typhi*, *Shigella flexneri*, *E.coli* and *Proteus vulgaris*. Further studies should be directed towards isolation and characterization of the active compound in the crude extracts.

Keywords: Bioactive components; Antibacterial activity; *Euphorbia heterophylla*; Enteric bacteria; Toxicity

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