Phytochemical screening, isolation, characterisation and antimicrobial activities of some medicinal plants

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Ten plants commonly used for medicinal purposes in Nigeria were investigated for secondary metabolites and biological activities. The plants included Parkia biglobosa, Waltheria indica, Lawsonia inermis, Mucuna pruriens, Anacardium occidentale, Vitellaria paradoxa, Jatropha curcus, Calotropis procera, Leptadenia hastate and Mitracarpus scaber. Phytochemical screening of their crude ethanolic extract revealed the presence of glycosides, anthraquinones, tannins, steroids, flavonoids and saponins. The results of cytotoxicity test using the extracts using Aphyosemion gadneri test (a non-conventional method) and brine shrimp lethality test (a conventional method) indicated various methods of activity. The results of the two tests were in consonance suggesting the possibility of standardizing Aphyosemion gadneri test for cytotoxicity test. The crude extracts exhibited various levels of acidities against B. subtilis, P. aeruginosa, E. coli, S. typhi, A. niger and C. albicans and V. paradoxa showed moderate to higher activity (zone of inhibition diameter range 15-27 mm) against both fungi and bacteria at the concentration of 7x102 μg/ml. Column chromatographic separation of the ethanol extract of V. paradoxa root bark lead to the isolation of four components that exhibited higher activities (zones of inhibition diameter of 17-28 mm for bacteria and 17-25 mm for fungi). Spectroscopic analysis of F1 and F2 using IR, NMR and GC/MS showed that F1 is butyl-2-ethylhexyphthalate and F2 is 1-phenyl-1,4-pentodione.

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