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A Comparative study of the antibacterial activity of crude extracts of *Munronia pinnata and Andrographis paniculata* against *E. coli*

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A Comparative study of the antibacterial activity of crude extracts of *Munronia pinnata* and *Andrographis paniculata* against *E. coli Munronia pinnata* (family - Meliaceae) and *Andrographis paniculata* (family - Acanthaceae), are used in ayurvedic and traditional medicine in Sri Lanka for the treatment of fever, dysentery and skin diseases as a substitute for *Swertia chiratta* (Family Gentianaceae). It has been used by the traditional physicians as a substitute for *Swertia chirata* during the preparation of *Sudarshana curna* and *Daruparpatadi kwatha* too. It is recorded in literature that the alcoholic extract of *A. paniculata* exhibits significant antibacterial activity against *E. coli*. Both *S. chirata* and *A. paniculata* also possess anti bacterial activity and both species are used for the treatment of dysentery. Currently, *M. pinnata* is also used for this purpose as a substitute for *S. chirata* by traditional and ayurvedic physicians, though it was not mentioned in the ancient treaties. Thus, the activity of cride water and ethanolic extracts of *M. pinnata* and *A. paniculata* against *E. coli* were determined by the use of the filter paper disc method. The aim of this study was to verify the

antibacterial potentials of *M.pinnata* and *A. peniculata* using *E. coli* as the bacterial model. Chlorumpenicol 0.01mg/l was used as a standard antibacterial drug. A loopful of *E. coli* culture was inoculated in a 5.0ml of sterilized nutrient broth and allowed to grow at 40 ^{0}C for 24 hours. Aqueous and ethanolic extracts of both plants were tested with *E. coli*. The water extracts of both plants were prepared using 60.0g of dried coarse powder boiled with 1920.0ml of water, down to a volume of 240.0ml and further concentrated to 80.0ml in earthen pots under low flame.(as done in the preparation of a conventional decoction). They were then further concentrated to 40.0ml on water bath. For ethanolic extract 5.0g of coarse powder was extracted using a soxhlet apparatus. The extract was further concentrated at 30^{0}C by Rota-vapor until a syrupy liquid was obtained. Two dilutions (10^{-1}, 10^{-2}) were prepared and sterilized filter paper discs (3.0mm diameters) were wetted with 0.1 ml of each extract and placed on seeded (*E. coli*) agar plates. Four discs of different concentrations were placed on seeded agar plates in replicates and incubated at 40 ^{0}C for 48 hours. Growth free area around the filter paper discs were measured after incubation. According to the results traditional decoction concentration of *A. paniculata* showed the highest inhibition towards to *E. coli*. While the same concentration of *M. pinnata* showed a comparatively lower inhibition of *E. coli* growth than that of *A. paniculata*.

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