In vitro antibacterial activities of some medicinal plants used to treat urinary tract infections

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ABSTRACT

Screening of ethnobotanical plants is a pre-requisite to evaluate their therapeutic potential, and it can lead to the isolation of new bioactive compounds. The crude extracts of four medicinal important plants (Vaccinium macrocarpon, Tribulus terrestris, Chichorium intybus and Fumaria indica) were tested against gram-negative (Shigella sonnei, Escherichia coli, Pseudomonas aeruginosa and Salmonella) and gram-positive (Bacillus subtilis and Staphylococcus aureus) using the agar disc diffusion method. Our results demonstrate that the ethanol extract of V. macrocarpon displayed antimicrobial activity against S. aureus (+), B. subtilis (+), E. coli (-), P. aeruginosa (-). T. terrestris was highly active against S. aureus (+), B. subtilis (+) and P. aeruginosa. C. intybus was highly active against P. aeruginosa (-), B. subtilis (+). F. indica was highly active against B. subtilis (+). The ethanolic extract of V. macrocarpon, T. terrestris, C. intybus and F. indica are suitable candidates for the development of novel antibacterial compounds.

Keywords: Antibacterial activity, Vaccinium macrocarpon, Tribulus terrestris, Chichorium intybus, Fumaria indica.

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DISCUSSION

Antimicrobial activity of medicinal plants to treat bacterial species known to cause infections caused by pathogenic microorganisms: E. coli, S. typhi, S. aureus, Staphylococcus aureus, P. aureginosa, and Shigella were investigated. The results indicated that the ethanol extract of Tribulus terrestris was highly active against E. coli (+), slightly active against S. typhi (+), and was inactive against P. aureginosa (+). The methanol extracts of Tribulus terrestris were slightly active against S. aureus (+), active against S. typhi (+), and was inactive against P. aureginosa (+).

The anti-fimbriae synthesis and bacterial deformation of proanthocyanidins (PACs) with A. macrocarpon was demonstrated on both antibiotic susceptible and resistant bacteria. This activity was highly active towards the inhibition of drug resistance, are among the most difficult multi-drug resistant bacteria. Infections caused by these organisms are treated with conventional antibiotics. In our study, our results showed that the aqueous extracts from fruits, leaves and stems of A. macrocarpon inhibited the growth of Shigella and was able to treat urinary tract infections. In one study, a group of patients were treated with A. macrocarpon extract for urinary tract infections, and the response rate was 90% compared to a control group treated with tetracycline, where the response rate was 60%.

In conclusion, the investigation of the antibacterial activity of medicinal plants showed that some extracts had significant activity against certain bacterial species. The results of these studies may provide new insights into the potential use of these plants as natural antimicrobial agents.
origin. Potentially active antibacterial synergized agent of plant this kind herald an interesting promise of de against a number of infections for generations. Results of combinations traditional plant medicines in Pakistan detected in this study may partly explain the that the in indica fluorescens activity, intyb of the water, ethanol and ethyl acetate extracts of Petrovic et al diphtheriae against most tested microorganisms. The most active extract against both bacteria was ethanol extract from the fruits with a minimal extract against both and of the world. Rao KS, Mishra SH, 1998. Antihepatotoxic activity of monomethyl fumarate isolated from Fumaria Indica. J Ethnopharmacol. 60(3): 207-213.

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