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Evaluation of antibacterial efficacy of albedo of *Citrus medica* fruit against pathogenic microorganisms

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Abstract

The present study aimed to explore the antibacterial effect of the albedo of *Citrus medica* fruit. For this pursuit, extracts were prepared in methanol, ethyl acetate, n-hexane, cold water, and hot water. These extracts were then tested against both plant and human pathogenic bacterial species. The disc diffusion method measured the antibacterial activity of extracts from the albedo of fruit at different concentrations (1000µg/disc, 2000µg /disc, and 3000 µg /disc). The findings of the study showed that hot water and ethyl acetate extract formed the same zone of inhibition against *Escherichia coli* (*E. coli 0157:H7) and Citrobacter freundii* (53% ZI) at 3000 µg/disc. Similarly, ethyl acetate extract was active against *Agrobacterium tumefecien* and produced a 53% zone of inhibition at 3000µg/disc. Methanol and cold water extract at 3000µg /disc formed a 41% zone of inhibition against *Agrobacterium tumefecien* and *Xanthomonas oryzae*.

Ethyl acetate extract n-hexane was active against *Bacillus atrophaeus* and *Salmonella typhi* by producing 41% zone of inhibition. The ethyl acetate extract showed antibacterial potential against *P. aeroginosa* and formed a 41% inhibition zone at 3000µg/disc. Furthermore, the growth of *Rhizobacteria solani* was inhibited equally by methanol and n-hexane extract (33%ZI) at 3000µg /disc. Hot water extract produced a 41% zone of inhibition against *C. freundii* . However, ethyl acetate and n-hexane extracts formed 28 and 23% zones of inhibition against *Rhizobacter* and *C. freundii* respectively.

Keywords: *Medicinal plants, Extracts, Antimicrobial potential, Zone of inhibition*