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Antibacterial and antiviral activities from different extracts of selected desert plants and isolation of their principal active agents

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Cholistan desert is a rich source of medicinal plants. These plants have been reported for many biological and pharmacological activities including antibacterial, antifungal, anti-diabetic, antiviral, etc. but very few chemistry-based approaches are available to classify principal active agent(s). The current study was designed to evaluate the antibacterial and antiviral potentials of different extracts of Cholistani plants against five common disease-causing bacteria and bird flu virus isolated from Bahawalpur region. Aqueous, n-hexane, methanol, n-butanol and ethanol extracts were made and tested against each bacterium through disc diffusion method and in ovo antiviral assay against bird flu virus. IC₅₀ and MIC of each positive extract was calculated. In antibacterial study, the results indicate that aqueous extracts have produced greater zones of inhibition as compared to other extracts. The overall trend of activity was aqueous >n-hexane>methanol>n-butanol>ethanol. In terms of bacteria, these extracts were effective in given order *Klebsiella pneumoniae*>*Proteus vulgaris*>*Staphylococcus aureus*>*Escherichia coli*>*Pseudomonas aeruginosa*. In antiviral studies, the order of activity of extracts were n-butanol>methanol>ethanol>aqueous>n-hexane. Selected plant extracts were subjected to Thin-Layer Chromatography (TLC) and High-Performance Liquid Chromatography (HPLC) analysis. The study concludes that Cholistani plants are rich source of antibacterial and antiviral agents and according to their nature(s), these compounds are soluble in different solvents.

Biography

Mirza Imran Shahzad is involved in active research since 2001. He did PhD in joint venture of University of California Davis and PMAS Arid Agriculture University Rawalpindi, Pakistan. He has produced more than 45 research articles in world renowned international journals. His area of interest is DNA vaccines against tuberculosis and bird flu virus.

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