

Isolation of the Bacteria Producing Antibiotic from the Phyllosphere of Two Families of Fabaceae and Asteraceae

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Abstract

Background and Objective: Antibiotics are the chemical compounds, which are produced by microorganisms, belong to a larger group of antimicrobial compounds that are used for treatment of infections caused by microorganisms.

Material and Methods: the isolates of four plant species, *Astragalus obtusifolius*, *Prosopis juliflora*, *Xanthium strumarium* and *Hippocrepis unisiliqiosa* were obtained using Trypticase Soy Agar. First, the purified isolates were screened from the viewpoint of their ability in producing antimicrobial metabolites against three typical microorganisms *Escherichia coli*, *Candida albicans* and *Saccharomyces cerevisiae*. Then, the microbial products were extracted using organic solvent ethyl acetate and their minimum suppression concentration was determined against three strains *Candida albicans* ATCC 10231, *Staphylococcus aureus* ATCC 25923, *Escherichia coli* ATCC 25922.

Results: After 4-7 days of incubation, 104 bacterial samples were isolated from isolates four plants. Out of this number, 26 isolates were antimicrobial producing metabolites by making inhibition zones against three typical microorganisms, after initial screening for production of antimicrobial compounds using agar diffusion method. Minimum inhibitory concentration of ethyl acetate extracts from target microbes were between 125-1000 µg/ml.

Conclusion: The results showed that the bacterial extracts of phyllosphere produce some compounds with antimicrobial properties.

Keywords: Antibiotic Producing Bacteria, Fabaceae, Asteraceae