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A study of the phytochemical properties and the synergistic effect of Mesembryanthemum crystallinum Linn. on some human pathogenic bacteria

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The increased prevalence of antibiotic resistance, as a result of extensive antibiotic use, may render the current antimicrobial agents insufficient to control, at least, some bacterial infections. The aerial part of Mesembryanthemum crystallinum was extracted by maceration with methanol (96% v/v) to exhaustion. The solvent was evaporated under reduced pressure. The decoction of the plant is used in traditional folk remedies as vaginal douche to treat vaginitis.To evaluate antimicrobial activity, the agar disc-diffusion assay was used against a Gram-positive bacteria (Staphylococcus aureus) and two Gram-negative bacteria (Escherichia coli and Pseudomonas aeruginosa). The methanolic extract did not show anyinhibitory effect on the tested bacterial strains. Association of antibiotics and the plant extract showed synergistic antibacterial activity especially with Ciprofloxacin, Tetracyclin and Amikacin. The antioxidant activity of the methanolic extract was investigated using TLC plate method with DPPH, their antioxidant characters were also tested utilizing DPPH as the radical reagent and ascorbic acid as reference. The methanolic extract showed effective free radical scavening. The major chemical constituents reported from the plant parts are flavoniods, saponins, steroids, triterpenoids and phenolic compounds which show that this plant part can be a potential candidate to be used as a therapeutic agent.

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