

Phytochemical Screening, antimicrobial and antioxidant efficacy of some plants and their mixture extracts

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Abstract:

The medicinal plants were good source of phytochemicals and active compounds. In order to find the most potential plant extracts for the mixture purpose that could give combination effect for antimicrobial and antioxidant activities. The targeted plants are *A. bilimbi*, *O. stamineus*, *E. longifolia*, *P. granatum*, and *M. nigra*. Ultrasound extraction technique was used for extraction. The yield of plant extract was test for detecting phytochemical content. After the detection of compound, the plant extracts were screened at 3 different concentrations (600, 400 and 200 mg/mL) against five microorganisms (*S. aureus*, *B. subtilis*, *P. vulgaris*, *E. coli*, and *C. albicans*) using disc diffusion assay method for selecting the potential extract. The result showed that *P. granatum* and *M. nigra* have highest antimicrobial activity against all the test organisms and selected for extract mixture and screened for antimicrobial activity at the same above mentioned concentrations. The DPPH scavenging activity of the individual plant extracts, *P. granatum* and *O. stamineus* gave the highest activities of 95.40 and 90.20%, respectively. Also gave the lowest IC₅₀ of 120.2 and 330.0 µg/mL, respectively, which indicate good antioxidant agents. Both extracts were selected for antioxidant combined action effect at ratio of *P. granatum*: *O. stamineus* (v/v) 1:1, 1:2 and 2:1 and all of the mixtures exhibited good scavenging activities of 94.31, 95.40 and 90.20%, respectively. However, the mixture with ratio 1:1 was the best antioxidant due to the IC₅₀ of 82.0 µg/mL obtained. It was concluded that the mixture of chosen extracts can be used as strong antioxidant properties as well as antimicrobial activity and the extract mixture reported as successful antifungal agent.

Keywords: Phytochemical; antioxidant; antimicrobial; combined extracts

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