

Antioxidant and Antimicrobial Activities of Edible Plant Leaf Extracts

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Abstract:

The aim of this research was to investigate the antioxidant and antimicrobial activities of four edible plant leaf (tamarind, star gooseberry, roselle and water mimosa) extracts. Ethanolic extract of tamarind (TE), star gooseberry (SE), roselle (RE) and water mimosa (WE) leaves were determined for total phenolic contents and antioxidant activities. The extracts showed phenolic contents with values of 4.48 (TE), 1.97 (SE), 10.25 (RE) and 16.43 (WE) mg GAE/ml. Antioxidant activity of extracts were expressed as percentage of DPPH radicals inhibition. DPPH scavenging activities of extracts were 37.70 (TE), 21.43 (SE), 65.03 (RE) and 92.28 (WE) %. On the other hand, antimicrobial activity was evaluated using broth dilution method. TE and RE exhibited antimicrobial activity against both Gram-positive (*Staphylococcus aureus* and *Bacillus cereus*) and Gram-negative bacteria (*Pseudomonas aeruginosa*, *Escherichia coli* and *Salmonella typhimurium*). However, SE and WE showed antimicrobial activity against only Gram-positive bacteria. The results indicated that WE has a potential to be used as a natural antioxidant and TE and RE have a potential application as antimicrobial agents and natural preservatives in food industry.

Keywords: Phenolic compound, DPPH, star gooseberry, *Salmonella*, preservative