

Study on Preliminary Phytochemical Screening, Antimicrobial and Antioxidant Activities of Lime (*Citrus aurantifolia* Swingle) Peel

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Abstract

The present study was carried out to investigate the preliminary phytochemical constituents, antimicrobial activity and antioxidant activity of lime (*Citrus aurantifolia* Swingle) peel. Preliminary phytochemical investigation of lime peel was done by test tube methods. In the study, alkaloid, phenolic compound, carbohydrate, flavonoid, glycoside, α -amino acid, reducing sugar, steroid, saponin, tannin and terpenoid were investigated in the sample. Cyanogenic glycoside was not found in the sample. The antimicrobial activities of various solvent extracts of lime peel were tested by agar well diffusion method on six species of microorganisms; *Bacillus subtilis*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Bacillus pumilus*, *Candida albicans* and *Escherichia coli* species. EtOAc and H₂O extracts show the highest activities on *Staphylococcus aureus* and *Pseudomonas aeruginosa*. EtOAc, EtOH and H₂O extracts also show the medium activities on *Bacillus subtilis*, *Bacillus pumilus*, *Candida albicans* and *Escherichia coli* species. In addition, the antioxidant activity of the ethanolic extract of selected sample was evaluated by DPPH (1,1-diphenyl-2-picrylhydrazyl) assay method. The DPPH radical scavenging activity of the ethanolic extract of lime fruit peels was compared with ascorbic acid. IC₅₀ values for antioxidant activity of standard ascorbic acid and lime fruit peels was 48.24 and 104.76 $\mu\text{g} / \text{mL}$, respectively. According to the IC₅₀ value, lime peel possesses the antioxidant activity.

Key words: *Citrus aurantifolia* Swingle, Antimicrobial activity, Antioxidant activity

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