

## Phenolic Compounds and Antimicrobial Properties of Pomegranate (*Punica granatum*) Peel Extracts

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**Abstract :** In recent years, tendency to use of natural antimicrobial agents in food industry has increased. Pomegranate peels containing phenolic compounds and anti-microbial agents, are counted as valuable source for extraction of these compounds. In this study, the extraction of pomegranate peel extract was carried out at different ethanol/water ratios (40:60, 60:40, and 80:20), temperatures (25, 40, and 55 °C), and time durations (20, 24, and 28 h). The extraction yield, phenolic compounds, flavonoids, and anthocyanins were measured. Antimicrobial activity of pomegranate peel extracts were determined against some food-borne microorganisms such as *Salmonella enteritidis*, *Escherichia coli*, *Listeria monocytogenes*, *Staphylococcus aureus*, *Aspergillus niger*, and *Saccharomyces cerevisiae* by agar diffusion and MIC methods. Results showed that at ethanol/water ratio 60:40, 25 °C and 24 h maximum amount of phenolic compounds (349.518 mg gallic acid/g dried extract), flavonoids (250.124 mg rutin/g dried extract), anthocyanins (252.047 mg cyanidin/g dried extract), and the strongest antimicrobial activity were obtained. All extracts' antimicrobial activities were demonstrated against every tested microorganisms. *Staphylococcus aureus* showed the highest sensitivity among the tested microorganisms.

**Keywords :** antimicrobial agents, phenolic compounds, pomegranate peel, solvent extraction

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