



Application of Some Herbal Medicinal Plant as Food Preservatives

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ABSTRACT

Fruit Juice especially orange (*Citrus Sinensis*) juice is very desirable for the consumer because of its fresh aroma and flavor, but its shelf life is less than 6 days at 4°C in best conditions during preparation, packaging, storage, handling and distribution. Microbiological quality is the bottleneck for safety and shelf life. Therefore, this study aimed to extend the shelf life of orange juice using water and ethanolic extracts of green tea leaves and lemongrass as a natural alternative to the chemical preservatives.

Different concentration (0.1 %, 0.2%, and 0.3%) (w/v) of water and ethanolic extracts of green tea leaves (*Camellia sinensis*) and lemongrass (*Cympopogon citratus*) have been added to orange juice with the addition of 0.1% (w/v) sodium benzoate. The effect of water and ethanolic extracts of green tea leaves and lemongrass on sensorial, microbial and physicochemical properties of orange juice have been investigated during 6 months of storage.

The most important findings showed that the highest content of total antioxidants, phenols and flavonoids were found in orange juice plus green tea leaves and lemongrass water and ethanolic extracts for treatments (A3,B3,C3,D3) compared to control sample. Furthermore, green tea leaves and lemongrass extracts had the most effect to minimize the total number of bacterial count of juice samples compared with control during storage period up to 6 months at 4.0±1.0°C. The total phenolic and flavonoids content (mg/100g) of

dried and extracts of green tea leaves and lemongrass by HPLC show that Catechin was the major phenolic compounds in green tea leaves powder, water and ethanolic powder, water and extracts, while rutin was the predominant flavonoid compounds in green tea ethanolic extracts, further more pyrogallol was the major phenolic compound in lemongrass powder, water and ethanolic extracts, while rutin was the predominant flavonoid compounds in lemongrass powder, water and ethanolic extracts.

Generally, it could be concluded that using water and ethanolic extracts of green tea leaves and lemongrass extended the shelf life and raise the nutritional and health values of orange juice.

Keywords: Natural preservatives, Green tea, Lemongrass, Water extract, Ethanolic extracts, Orange juice, Bioactive compounds, Antioxidant activity, Antimicrobial activity, HPLC Analysis.
