FCT - 52

Development of an herbal drink using Sri Lankan varieties of *Sesbania grandiflora* and *Citrofortunella microcarpa* and its antioxidant activity

P. P. D. Cooray[1], P. D. S. U. Wickramasinghe[2]*

[1]*Faculty of Science, Horizon Campus, Malabe, Sri Lanka*

[2]*Department of Chemistry, Faculty of Science, University of Colombo, Sri Lanka*

A Majority of individuals prefer ready-to-serve (RTS) beverages over preparing herbal drinks due to the busy lifestyle. The current study was focused on the development of a ready-to-serve herbal drink using the pulp of *Sesbania grandiflora* leaflets and *Citrofortunella microcarpa* fruit sac juice with sugar, table salt, and distilled water. According to previous studies, the major active compounds of the drink contain high antioxidant activity and nutrients which are considered beneficial for human health. A sensory evaluation was conducted by a trained group of tasters to choose the best sample with significant differences to taste, appearance, and aroma. pH value, titratable acidity, Brix value, reducing sugar activity, antioxidant activity, qualitative analysis of phytochemicals, microbial analysis, and shelf life of the herbal drink were determined. The herbal drink contained a pH value of 2.36 at 298.15 K, titratable acidity of 0.384% when the milliequivalent factor for citric acid is 0.064, and a Brix value of 11 at 293.15 K. The herbal drink contains the phytochemicals such as sterols, terpenoids, flavonoids, phenols, glycosides, and saponins which were identified from qualitative analysis, whereas alkaloids and tannins were absent. Antioxidant activity had a maximum of 71.48% DPPH radical scavenging activity (RSA) at 12.5% (v/v) concentration of drink in methanol and inhibition concentration 50 (IC_{50}) was at 47% (v/v) concentration of the drink in methanol. The total plate count was 840 CFU/ml (colony-forming units per milliliter) and the estimated yeast and mold count was <250 CFU/ml, yet coliform, fecal coliform, and *Escherichia coli* had no growth for two days under optimum growth conditions. According to the study, the refrigerated sample had the least amount of microbial growth. Therefore, the herbal drink sans preservatives is recommended to be stored in the refrigerator.

Keywords: Herbal drink, *Sesbania grandiflora*, *Citrofortunella microcarpa*, Antioxidant effect, Phytochemicals, Free radical scavenging activity, Shelf life

*Corresponding author. Department of Chemistry, Faculty of Science, University of Colombo, Sri Lanka.
Email address: sachith@chem.acmb.ac.lk