ABSTRACT

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UTILIZATION OF DRUMSTICK (Moringa oleifera) AND STEVIA (Stevia rebaudiana) LEAVES INCORPORATED INTO GREEN TEA (Camellia sinensis) IN PRODUCTION OF FUNCTIONAL TEA

Drumstick and green tea leaves have many health effects that are beneficial to type 2 diabetes mellitus (T2DM) patients. It has potency to act as an antioxidant and antidiabetic agent. Besides, stevia leaves could give sweet flavor without contributing any calorie. The aim of this study is to utilize drumstick, green tea, and stevia leaves to develop functional tea that could help to manage T2DM patients. Functional tea was made with three levels of ratio green tea–drumstick (90:10, 80:10, and 70:30) and three levels of stevia leaves concentration in unbrewed functional tea (10%, 15%, and 20%). Samples are then analyzed for its physicochemical (pH, color, and moisture content) and sensory analyses (color, aroma, taste, aftertaste, and overall). The results show that different ratio green tea–drumstick affected pH of the functional tea. The most preferred sample is functional tea with ratio green tea–drumstick of 70:30 and stevia concentration of 15%. It has IC₅₀ of DPPH (2,2-diphenyl-1-picryl-hydrazyl) radical scavenging and α-glucosidase inhibition activity of 42.35 ppm and 3690.43 ppm, respectively. The nutritional composition of brewed functional tea are 0.04% protein, 0.00% fat, 0.17% carbohydrate, 0.05% ash, and 99.74% water. Besides, the calcium and potassium content are 3.40 and 21.29 mg / 100g, respectively. Meanwhile, the nutritional composition of unbrewed sample are 20.84% protein, 4.02% fat, 62.15% carbohydrate, 7.31% ash, and 5.68% water.

Keywords: α-glucosidase inhibition activity, antioxidant, Camellia sinensis, functional tea, Moringa oleifera, physicochemical properties, Stevia rebaudiana

References: 59 (1990-2015)