Development of a Concentrated Strawberry Beverage Fortified with Longan Seed Extract

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ABSTRACT

Longan (Dimocarpus longan Lour.) is an important and economic crop in northern Thailand. Longan fruits can be consumed as fresh or processed products, such as canned longan, dried longan and longan in baked goods. Longan processing often consists of removing the shell and seeds that are then discarded. In fact, longan seeds contain phenolic compounds, which are anti-oxidants and free radical scavengers. Therefore, in this research we aimed to extract longan seeds (cultivar Edor) and fortify the crude extract into a concentrated strawberry beverage. The efficiency of two extraction solvents, hot water (70-75°C) and ethanol (70%), were compared. The total phenolic compounds of the crude extracts were 41.2 ± 0.2 and 11.7 ± 0.1 mg GAE/g for hot water and ethanol extraction, respectively. The strawberry concentrate was produced using a freeze-concentration process. The effect of the number of freeze cycles on the quality of the strawberry concentrate was also evaluated. The concentrated strawberry produced by two freezing cycles was selected to develop a beverage according to the richness in vitamin C, anthocyanin contents, and consumer acceptance. The optimized formula of concentrated strawberry beverage fortified with longan seed extract was 5.58% sweetener and 0.42% longan seed extract. This drink contained 248.73 mg/100 g vitamin C, 35.6 mg/100 g anthocyanin content, and 0.17 g/L DPPH free radical scavenging activity. An acceptance test using a 9-point hedonic scale showed that consumers (n=100) accepted the concentrated product with a 'like very much' judgment (7.2-7.7 marks). The concentrated strawberry beverage fortified with longan seed extract developed here offers several health benefits and shows potential as a commercial product.

Keywords: Antioxidation, Healthy drink, Extraction, Freeze concentration, Phenolic compound