UNIVERSITI TEKNOLOGI MARA

EVALUATION OF PHYSICOCHEMICAL, PHYTOCHEMICAL, ANTIOXIDANT AND CAROTENOID PROPERTIES OF WATERMELON *Citrullus lanatus* JUICE AT DIFFERENT STORAGE TEMPERATURES AND TREATMENTS

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ABSTRACT

Watermelon (*Citrullus lanatus*) is a perishable fruit with significant phytochemicals, carotenoids and antioxidant properties that are beneficial to human health. Due to convenience, majority of the individuals prefer to consume watermelon in juice form. In this study, watermelon juice was treated and stored at room temperature (25°C), refrigerator cold (4°C), refrigerator freeze (-8°C) and freeze-dried, and were analyzed on day 1, day 3, day 5, day 7 and day 9 on the juice physicochemical, phytochemical, antioxidant and carotenoid quantification. The results demonstrated significant changes between storage (B) and within day (W) analysis on watermelon juices quality during 9 days of storage, with the changes of juice physicochemical in weight loss (B: p=0.010; W: p=0.000), pH (B: p=0.005; W: p=0.001), ash content (*B:* p=0.043*; W:* p=0.000), moisture content (*B:* p=0.001*; W:* p=0.005), total soluble solid (B: p=0.000*;* W*:* p=0.001), browning (B: p=0.010; W: p=0.023) and turbidity (B: p=0.005; W: p=0.000), phytochemical content of total phenolic (B: p=0.002; W: p=0.001) and total flavonoid (B*:* p= 0.002; W: p=0.000), antioxidant scavenging activities using 2,2-1-diphenyl-1-picrylhydrazyl (DPPH) (B: p=0.000; W: p=0.023) and quantification of carotenoids; lycopene (B: p=0.000; W: p=0.005) and β-carotene (B: p=0.002; W: p=0.000) using high-performance liquid chromatography (HPLC). Watermelon juice undergo degradation of its nutritional values and reduces juice quality during 9 days of storage. Hence, the consumption of fresh juice is recommended for watermelon's benefits.

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