Development and Quality Evaluation of Avocado (*Persea americana*) Based Nutritious Supplement Food

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Postharvest loss of avocado (*Persea americana*) is very high due to lack of proper indices for maturity detection, seasonality, uneven ripening, and less attention for using product development. This study was aimed to develop avocado-based nutrient-rich supplementary food using dehydrated avocado powder. The avocado fruits in proper maturity were selected and dehydrated using an air dryer(55℃), heat pump dryer(40℃), and freeze dryer(-55℃) followed by blanching and without blanching. The pretreatments (1.5g/L) were used such as citric, ascorbic, combination of citric and ascorbic, and control. The best treatment was selected based on Browning Index (BI). Supplement food was prepared using a different combination of avocado (40%, 50%, and 60% w/w). Proximate composition, physicochemical properties, and sensory properties of the avocado powders and initial physicochemical properties (as; pH, total soluble solids (TSS), lightness (L*), red/green coordinate (a*), yellow/blue coordinate (b*) for the final product was determined. Sensory data were analyzed by Friedman's non-parametric test using 7 points hedonic scale by 20 untrained panelists. Physicochemical properties data analyzed using ANOVA test by MINITAB 17. The lowest moisture (7.57±0.01%) and highest ash (3.86±0.00%) content were recorded by heat pump-dried samples, while the highest crude protein (14.84±0.00%) was recorded by freeze-dried samples, and the highest crude fat (20.31±0.00%) was given by the sample dried using air dryer. A significant difference ($P \leq 0.05$) was observed in all physicochemical properties. The TSS content was significantly increased while pH, ascorbic acid content, and colorimetric measures were reduced during the two months of storage period. Heat pump dried without blanching ascorbic acid-treated (BI=56.03±3.28) avocado powder was selected as a qualitatively and economically best treatment for product development based on its properties. Initial physicochemical properties of the product as pH, TSS, L*, a*, b* were 5.67±0.03, 1.53±0.05%, 63.86±0.26, -4.40±0.40, 27.32±0.13 respectively. Based on sensory evaluation the 50:50 avocado powder can be used for product preparation with oats, soybean, *Centella asiatica*, and vanilla in 25:15:5:5 ratio. The dehydrated avocado powder can be successfully used to develop avocado-based nutrient-rich supplementary food. Further studies are needed to evaluate its shelf life and select a suitable packaging.

***Keywords*:** Supplement food; Avocado powder; Blanching; Citric; Ascorbic