

Abstract

Food loss and waste is a serious problem worldwide, which makes Indonesia ranked as a primary contributor, mostly caused by the leftover fruits byproduct. Apple peel is rich in natural antioxidants, flavonoids, and fiber, presenting an unwanted resource that may be used to create a beneficial herbal tea in order to reduce waste. The objective of this study is to evaluate the effect of different drying methods on the stability of physical and antioxidant properties in the apple “Fuji” tea. The method used in this study used a dehydrator and oven drying, with a different temperature which are 65°C and 110°C for 10 hours for dehydrator and 2 hours for the oven. On day 0 to day 28 the physicochemical was assessed by analyzing the color (L^* , a^* , and b^*) value, moisture content by using AOAC method, water activity (a_w), and free radicals scavenging activity which is DPPH analysis. Findings in this study are the oven drying day 0 resulting in a lowest moisture content. For the water activity the lowest water activity result is dehydrator treatment day 0 and the lowest was oven day 28. During storage, the moisture content and water activity increased due to their hygroscopic. though water activity (a_w) safely remained below the critical microbial threshold of 0.60. However the result of the color analysis show a decreases of the L^* and a^* value due to non enzymatic activity which is the maillard reaction. And b^* value was increased due to the rapid thermal degradation which was caused by the high temperature in front of the oven which caused the caramelization process. Furthermore, the result of DPPH analysis is decreased during the storage, but the dehydrator preserved the antioxidant better than the oven method. In conclusion the oven drying can accelerate the moisture extraction, while dehydrator drying can preserve the color and antioxidant activities of the apple peels tea.

Keywords: Antioxidant Stability, Apple Peel Tea, Color analysis Dehydrator Drying, DPPH, Food Waste, Moisture Content, Oven Drying, Water Activity