

Effect of Drying and Storage Conditions Towards the Bioactive Compounds Content and Antioxidant Activity of Mango Peel Powder

ABSTRACT

Mango peel is one of the wastes produced by the mango processing industry that contains bioactive compounds such as polyphenol and carotenoids. This study was carried out to determine the effect of drying methods on the antioxidant activity of mango peel powder and its stability during storage. Mango peel was dried by using vacuum and cabinet hot air-drying methods followed by bioactive content and antioxidant activity determination. The change in bioactive compounds content and antioxidant activity were also evaluated during 8 weeks of storage in dark/light and airtight/non-airtight conditions. The results obtained show that vacuum-dried powder had higher antioxidant activity than cabinet hot air-dried samples with higher content of total phenolic (48.27 ± 0.28 mg GAE/g), better scavenging activity of DPPH free radical ($66.69 \pm 0.88\%$) and β -carotene oxidation inhibition activity of $83.32 \pm 0.93\%$. However, the carotenoid content of vacuumdried powder was lower than the cabinet hot air-dried powder with 83.21 ± 1.13 $\mu\text{g/g}$ and 98.83 ± 0.93 $\mu\text{g/g}$ respectively. The antioxidant activity of the samples was also comparable to butylated hydroxyanisole (BHA), which is the standard antioxidant. Besides that, storage studies revealed that samples kept in the dark and airtight conditions have the highest antioxidant activity retention compared to other storage conditions. The results obtained from this study reveals the potential use of mango peel powder as a source of natural antioxidants for food applications.