

Effect of Plantain Peel Extract On Oxidative Stability of Coconut Oil and Sesame Oil Blends during Accelerated Oven Storage

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This study was aimed to determine the effect of acetonc extract of plantain peel on oxidative stability of coconut oil and sesame oil blends during accelerated oven storage. Oil blends were prepared to contain different ratios (volume basis) of coconut oil and sesame oil such as 70:30 (blend 1), 50:50 (blend 2) and 30:70 (blend 3), respectively. Level of oxidation of the oils was assessed by measuring free fatty acid content, peroxide value and *p*-anisidine value. Plantain peel extract was incorporated at 800 ppm into the oils. Oil sample without any added antioxidants was used as negative control, whereas, oil samples added with Butylated Hydroxytoluene (BHT) (200 ppm) and tocopherol (200 ppm) were used as positive controls. Accelerated oven storage test was carried out by keeping samples in an oven at 60 ± 5 °C up to 14 days and samples were analyzed on 1st, 3rd, 7th and 14th days of storage. Data were analysed ($\alpha = 0.05$) using SAS. The free fatty acid content, peroxide value and *p*-anisidine value of all oil samples expressed a gradual increase throughout the storage up to 14 days. The oil samples added with plantain peel extract exhibited significantly lower free fatty acid content, peroxide value and *p*-anisidine value than both positive controls and negative control throughout the storage. Among the blends, blend 1 showed significantly higher oxidative stability than other two blends and it exhibited shelf life comparable to coconut oil, but significantly higher than that of sesame oil. From this study, it is concluded that the plantain peel extract could be more effective than synthetic antioxidants (BHT and tocopherol) in improving the oxidative stability of oil samples during accelerated oven storage.

Keywords: Accelerated oven storage, Antioxidants, Coconut oil, Sesame oil