

EFFECTIVENESS OF NATURAL PLANT EXTRACTS IN STABILIZATION OF SESAME OIL

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Oxidation of edible oils leads to generation of numerous oxidative products most of which bear toxic effects. Therefore, it is important to improve the stability of oils and fat-rich food systems. Addition of natural antioxidants retards the oxidative reactions of edible oils. In this background, the objective of the present study was to evaluate the efficacy of extracts obtained from mangosteen peel, cinnamon bark and chilli as sources of natural antioxidants in stabilizing stripped sesame oil (SEO) subjected to accelerated storage conditions. The acetone extracts of plant materials were added into preheated (60°C) stripped SEO at a concentration of 2.00 % (w/w). The oil devoid of any additive was used as the control. The oil samples (6.00 ± 0.05g) containing extracts and the control was maintained at 60 ± 5°C for 28 days. The level of oxidation of the oil samples was assessed on the day 0, 1, 3, 5, 7, 14, 21 and 28. Peroxide Value (PV), Thiobarbituric Acid Reactive Substances (TBARS), Conjugated Dienes (CD) and Conjugated Trienes (CT) of the oil samples were determined. The PV of oil samples containing mangosteen peel extract (MPE), cinnamon bark extract (CBE) and chili extract (CE) increased by 0.2000, 0.0252 and 0.0251 per day, respectively, while the control oil sample showed 0.0404 increase per day. The corresponding rate of increment of TBARS was 0.0211, 0.0300, 0.0322 and 0.1007. The corresponding rate of increment of CD was 0.0275, 0.0233, 0.0784 and 0.0488, while the corresponding rate increment of CT was 0.0313, 0.0510, 0.5838 and 2.0370. The role of natural plant extracts in the oxidation process is clearly expressed by the low rate of oxidation in samples carrying plant extracts compared to the control. It is obvious that MPE retarded oxidation more effectively than CBE and CE. It can be concluded that natural plant extracts tested can be considered as potential sources of natural origin antioxidant for stabilization of SEO.

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