

Abstract

The investigation was undertaken with an objective of analyzing the antioxidant capacity of leafy vegetables (LV) and testing their efficacy on storage of heated oils. Four leafy vegetables viz., cabbage (*Brassica oleracea* var. *capitata*), coriander leaves (*Coriandrum sativum*), hongone (*Alternanthera sessilis*), and spinach (*Spinacia oleracea*) were analyzed for antioxidant activity by standard methods. The ethanol extracts of LV were added to refined sunflower and groundnut oils heated to frying temperature and stored for 4 weeks, analyzed for peroxide value that indicates the oxidative state of oils. The polyphenol content ranged from 5 mg in cabbage to 69.5 mg in spinach. Reducing power of the leafy vegetables indicative of electron donating property for termination of free radical chain reactions followed the order—spinach<cabbage<coriander leaves<hongone leaves. LV exhibited good hydroxyl radical and DPPH scavenging activities. LV extracts conferred a protective effect on peroxide formation on storage of heated oils. LV are excellent antioxidants that are stable at high temperatures and can serve as substitutes for synthetic antioxidants.

Industrial relevance

This paper presents an interesting approach using leafy vegetable extract with antioxidative properties to prevent oxidative damage during storage of heated oils. The temperature stability of antioxidants from leafy vegetables would allow to produce highly useful antioxidative extracts from vegetable processing wastes.