

Abstract

Fortification of Potato Chips with Natural Plant Extracts to Enhance their Sensory Properties and Storage Stability

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This study evaluated the effectiveness of grape seed extracts (GSE), green tea extracts (GTE), or butylated hydroxytoluene (BHT) on lipid oxidation reduction of potato chips stored for up to 90 days. The highest ($P \leq 0.05$) phenolic contents were detected in GSE (6134.5 mg gallic acid equivalent /100g) followed by GTE and other plant extracts (oregano, thyme, terebinth, parsley, and bouncing bet). BHT had the greatest antioxidant activity (% inhibition) value (53.0) followed by GSE (42.6) and GTE (31.7). The GSE and GTE exhibited significantly higher antioxidant activities (measured by oxidative stability instrument) than the other plant extracts. The BHT and GSE at 1000 ppm level was significantly the most effective in minimizing the peroxide value development during 90 days of storage. Descriptive results showed that higher levels of GSE and GTE (750 and 1000 ppm) prevented the astringent development during 60 days of storage and minimized the off-notes, i.e., astringent and rancidity, during 90 days of storage. The cardboard attribute was not noticed when GSE and GTE, and BHT were added at 750 and 1000 ppm levels. The GSE and GTE have a great potential to be used as natural antioxidants to preserve the potato chips.

Key Words: potato chips, lipid oxidation, sensory, antioxidants