

Title Storage stability of roasted flaxseed  
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### **Abstract**

Flaxseed is a high value crop due to the high levels functional compounds such as alpha-linolenic acid, lignans and fiber. Previous research indicated that roasting improved consumer preference in flaxseed. However, flaxseed is susceptible to lipid oxidation, hence improving stability of the oil is imperative for extending shelf-life. The objective of this study was to evaluate the storage stability of roasted flaxseed and control samples in relation to lipid oxidation. Omega flaxseed was roasted at 160 °C (16 and 24 min) and 180 °C (18 min) in an air impingement oven. Samples were stored at 25 and 30 °C for 4-week period. Peroxide value (PV) and free fatty acid content (FFA) were determined. Fatty acid composition (oleic, linoleic and linolenic acids) was analyzed by gas chromatography. All samples indicated lower PV subsequent to roasting application. PV increased with storage time. Control samples, gave the lowest values for 2-week and 4-week storage periods. The PV in the 160 °C (24 min) and 180 °C (8 min) roasted samples were statistically ( $P<0.05$ ) lower than 160 °C (16 min) samples. Samples, which were stored at 30 °C gave higher PV than at 25 °C storage samples. For the 160 °C (24min) and 180 °C (8 min) samples PV did not significantly increase between weeks 2 and 4. Roasting decreased FFA content. All control samples had statistically ( $P<0.05$ ) higher FFA contents than roasted samples. Samples, which were roasted at 160 °C had lower FFA content. Fatty acid profile showed low variation, indicating insignificant changes in terms of linolenic acid content. Storage time increased peroxide values, indicating a decrease in stability of roasted flaxseed. Nevertheless roasting may be used as a potential process, since no significant impacts on free fatty acid content and fatty acid profile were observed.