

Physicochemical properties and oxidative storage stability of milled roselle (*Hibiscus sabdariffa* L.) seeds

ABSTRACT

Milled Roselle (*Hibiscus sabdariffa* L.) seeds of the UMKL cultivar were analyzed for proximate composition, water and oil absorption capacity, and the influence of storage conditions on storage stability. The storage stability was determined under four types of conditions: light/oxygen (air) (LO), light/nitrogen (LN), darkness/oxygen (air) (DO), and darkness/nitrogen (DN) while monitoring for seven consecutive months. During the storage period, the formation of volatiles was determined using dynamic headspace sampling and Gas Chromatography-Mass Spectrometry (GC-MS) analysis. In total, 85 volatiles were identified, mainly aldehydes, alcohols, ketones, furans, and acids indicating lipid oxidation. It is recommended that milled Roselle seeds should be flushed with nitrogen and stored in darkness. Under these conditions, the seeds can be stored for at least three months without changes in volatile profile. This is important to ensure the good quality of milled Roselle seeds for further commercialization.

Keyword: Roselle seeds; Storage stability; Gas chromatography–mass spectrometry; Volatile compounds; Principal component analysis; Physicochemical properties