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Full Length Research Paper

Effects of deodorization on the quality and stability of three unconventional Sudanese oils

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Degummed, refined and bleached oils from *Sclerocarya birrea* (SCO), sorghum bug (SBO), melon bug water extract (MBOH$_2$O) and melon bug solvent extract (MBOSOL) were deodorized, using a lab-scale deodorizing apparatus for different periods of time (0.5, 1.0 and 2.0 h) at different temperatures (190,210,and 250°C). Quality changes, stability against oxidation and the fatty acid composition were determined. A clear change in the phosphatides level according to deodorization temperature and time was observed, and peroxides and free fatty acids content were significantly ($p < 0.05$) reduced in all samples with the increase of deodorization temperature and nearly completely removed at 250°C. Tocopherols were decreased as a result of elevated temperature, which is about 210 and 250°C in all samples except MBOH$_2$O, where tocopherols was completely removed during deodorization temperatures. Oils did not undergo any changes in the fatty acid compositions during deodorization. The oxidative stability increased as affected by elevated deodorization temperature and time in all studied samples.

Keywords: *Sclerocarya birrea* oil, sorghum bug oil, melon bug oil, deodorization, quality, stability.