

Evaluation of the suitability of *Tetracarpidium conophorum*, *Pentaclethra macrophylla* and *Citrullus vulgaris* seed oils for some fried products

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Frying performance of crude melon seed oil, conophor nut oil and African oil bean seed oil was investigated by assessing the physicochemical changes of the oils during frying of plantain, yam and potato chips. Sensory evaluation was conducted on the fried products using untrained panelists to assess acceptability of the oils for frying. The storage stability of the chips was also compared. The chips were fried in each oil for two minutes, packaged and stored at room temperature. Lipids were extracted from the stored chips at two-week intervals and analyzed for Acid Value, Peroxide Value, Iodine Value, Saponification Value and Free Fatty Acids. Conophor nut oil had Free Fatty Acid (FFA) values of 1.86 mg/g before frying and 10.66 mg/g after frying. Melon seed oil had FFA values of 1.02 and 2.26 mg/g before and after frying respectively. Melon seed oil fried products had the highest sensory ratings with general acceptability scores of 7.50, 7.57 and 6.60 for potato, plantain and yam chips respectively. Conophor nut oil fried products had the least general acceptability scores of 3.80, 4.20 and 3.42 for potato, plantain and yam chips respectively. Chips fried in conophor nut oil had a greater rate of accumulation of peroxide and free fatty acids over the 4 weeks of storage having peroxide values of 9.44, 35.73 and 11.96 mg/g for potato, plantain and yam chips respectively in the second week of storage. These increased to 13.93, 87.14 and 16.00 mg/g by the fourth week of storage. Chips fried in Melon seed oil had the least accumulation of peroxides with peroxide values of 0.73, 19.22 and 10.32 mg/g for potato, plantain and yam fried chips respectively in the second week and 12.61, 23.21 and 14.00 mg/g in the fourth week. Among all three frying oils, melon seed oil was the most stable while conophor nut oil generally exhibited the least chemical stability during frying. Conophor nut oil fried products were least accepted while melon seed oil fried products were the highest rated.

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