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DEVELOPMENT AND EVALUATION OF DEEP-FRIED CARROT CHIPS AS A SOURCE OF VITAMIN A

by

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A DISSERTATION

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ABSTRACT

The influence of deep-frying using different oils and temperatures on carotenoid content and physicochemical and sensory characteristics of carrot chips was investigated. Sliced carrots were steam-blanched, cooled, soaked in 0.2% sodium metabisulfite, and deep-fried in canola, palm, or partially hydrogenated soybean oil (PHSO) at 165, 175, or 185 °C. Frying temperature, but not oil type, significantly ($P<0.05$) affected the α-carotene, β-carotene, and total carotenoid contents. Oil type significantly ($P<0.05$) influenced all color values. Increasing the frying temperature lowered the redness value, which correlated with decreased carotenoid content, color darkening, and decreased hardness value. Trained panelists detected no differences among oil types in crispness, sweetness, odor, and acceptability. The best carrot chip product was that fried in PHSO at 165 °C.

Key words: deep-frying, carotenoid, carrot chips, oil, frying temperature