

# EFFECTS OF CULTIVAR, FRYING TEMPERATURE AND SLICE THICKNESS ON OIL UPTAKE AND SENSORY QUALITY OF POTATO CRISPS PROCESSED FROM FOUR KENYAN POTATO CULTIVARS

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## Abstract

The effects of potato cultivar, frying temperature and slice thickness on oil uptake and sensory quality of potato crisps were investigated in four Kenyan cultivars. Potato tubers were peeled, washed and cut into slices of thickness 1.0 mm, 1.5 mm and 2.0 mm. Each size was fried at a constant temperature of 170 °C for 3-5 minutes. For frying temperature evaluation, the potatoes for all cultivars were cut into a uniform thickness of 1.5 mm and fried at temperatures of 160, 170 and 180 °C for 2-5 minutes.

Crisps made from the four cultivars differed significantly ( $P \leq 0.05$ ) in oil absorbed which ranged from 35.12 % in Dutch Robyjn to 36.52 % in clone 391691.96. Tuber dry matter differed significantly ( $P \leq 0.05$ ) among the cultivars ranging from 20.99 % in clone 391691.96 to 25.29 % in variety Dutch Robyjn. Tuber dry matter content was found to be negatively correlated to oil content of crisps; oil content increased with decrease in dry matter content. For each cultivar, the oil content of crisps differed significantly ( $P \leq 0.05$ ) with temperatures and was higher at frying temperatures of 160 °C and lowest at 180 °C, respectively. The oil content was significantly ( $P \leq 0.05$ ) higher in slices of 1.0 mm thick than in slices of 1.5 mm and 2.0 mm; the amount of oil absorbed decreased with increase in slice thickness.

There was significant correlation ( $P \leq 0.05$ ,  $r = -0.834$ ) between oil content as determined in the laboratory and sensory scores. Results showed that high dry matter, slice thickness and temperature of frying resulted in reduced oil absorption by crisps during processing

**Key words:** slice thickness, frying temperatures, oil content, potato crisps, cultivar