

Effect of slice thickness and frying temperature on color, texture and sensory properties of crisps made from four Kenyan potato cultivars

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ABSTRACT

BACKGROUND: In recent years, there has been a general increase towards consumption of potato crisps in the world, Kenya included. In processing of potato crisps, the most important quality characteristics manufacturers endeavor to control are color and texture that influence the sensory properties. The objective of this work was to study the performance of four Kenyan potato cultivars in terms of texture, color and sensory properties when crisps are processed in different slice thickness and frying temperatures. 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 2-5 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.

RESULTS: There was no significant ($P \geq 0.05$) variation in crisps texture among the four cultivars at different frying temperatures. However, texture significantly ($P \leq 0.05$) increased with increase in frying temperature and the Maximum Force (MF) significantly ($P \leq 0.05$) increased with increase in slice thickness. Potato cultivar and slice thickness significantly ($P \leq$

0.05) influenced the lightness (L^*), redness (a^*) and yellowness (b^*) color parameters. Redness and yellowness parameters significantly ($P \leq 0.05$) decreased with increase frying temperature. Potato cultivar significantly ($P \leq 0.05$) influenced sensory scores on crisps color, flavor, texture and overall acceptability. Notably, frying temperature did not significantly ($P \geq 0.05$) affect crisps color, flavor and texture. Color scores significantly ($P \leq 0.05$) decreased with increasing slice thickness. There were no significant ($P \geq 0.05$) effects of thickness on flavor and texture scores of crisps.

CONCLUSION: The effects of variety, frying temperature and slice thickness on potato crisps quality are apparent, and hence the need for crisps processors to properly select not only the cultivars but also the critical processing parameters.

Key words: potato; texture; color parameters; slice thickness; temperature