

ORIGINAL RESEARCH

Are Deep Frying Practices Employed by Food Vendors in Mtwapa and Junju Communities of Kilifi County Safe? An Exploratory Study

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Abstract

Background: Deep fat frying practices are shown to influence the concentration of toxic aldehydes in frying oils and the fried foods. Consumption of foods with high amounts of toxic aldehydes is linked with increased risks of developing chronic diseases such as some forms of cancers, cardiovascular diseases, neurological disorders, and diabetes. Surveys from low and medium-income countries have shown high concentrations of toxic aldehydes in food and frying oil samples from food vendors. There are limited studies in Kenya investigating deep frying practices and whether they promote generation of toxic aldehydes or not. This study determined the common deep-frying practices employed by food vendors in Mtwapa and Junju locations in Kilifi County and determined the concentrations of toxic aldehydes in in-use frying oils randomly collected from food vendors in the study area.

Methods: A cross-sectional study design was used. Food vendors (n=90) who deep fried their foods were interviewed on deep frying practices like the type of frying oil and pan make and shape, temperature regulation, frying duration, type of foods fried, recycling and storage of frying oil among other practices. Oil samples from mahamri and fish (n= 20) were collected from the field and chemically analysed in triplicates for primary oxidation status expressed in peroxide values and the concentration of toxic aldehydes expressed in Perianisidine values (PAV) using SPECTRO UV-18 MRC at absorbance of 350nm.

Results: Frequently fried foods were *Mahamri* (38%, n=41), *viazi karai* (30.6%, n=33), and fish (10.2%, n=11). All respondents used frying oils of unknown smoking point, 95% used pans that formed rust, all used trial-and-error when regulating frying temperatures, on average recycled their oil three times characterized with poor storage and 73% discarded their oil when the color changed to dark brown. Sixty percent of the mahamri oil samples and 70% all of fish oil samples had PAV above Codex recommended limits of 8.0 mEq/Kg.

Conclusions: Deep fat frying practices reported in the present study portray unsafe practices that promote formation of toxic aldehydes. The high toxic aldehydes observed from the majority of the chemically analysed oil samples corroborate the findings that the deep-frying practices are unsafe and therefore, might be exposing the public to toxic aldehydes linked with undesirable health outcomes. Existing literature further supports these conclusions.

Key words: Deep frying practices, concentration of toxic aldehydes, generation of toxic aldehydes, deep fried foods, frying oils