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A STUDY ON PRACTICES USED IN PREPARATION OF SELECTED SNACKS AND THEIR *TRANS* FATTY ACID CONTENT

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Recent studies have provided unequivocal evidence that *trans* fatty acids (TFA) elevate plasma concentrations of low density lipoprotein (LDL) cholesterol and reduce concentrations of high density lipoprotein (HDL) cholesterol compared to the cis counterparts thus escalating the risk of cardiovascular disease incidences. TFA are predominantly generated during partial hydrogenation of edible oils. In addition, there are evidences suggesting generation of TFA during frying where edible oils are subjected to high temperatures. Many developed nations have brought stringent regulations to curtail the TFA content in foods, however, not much emphasis has been placed on TFA so far in Sri Lanka. In this backdrop, the present study was carried out to identify the practices used by local food manufacturers and vendors in preparing six different snacks namely, French fries, wade (a black gram based snack), flour based fried snacks, manioc chips and Chinese rolls, and to assess their total and trans fat contents and fatty acid profiles of lipid fraction. Information on the type of oil used for preparation of snack, the number of cycles the oil was used, energy source and the heating device used for frying was collected from 50 local snack processors. The snack samples were collected from the same outlets, homogenised and dried. The total and trans fat contents as well as fatty acid profiles were determined by gas liquid chromatography (GLC). Information gathered through the questionnaire revealed that most of the manufacturers used palm oil for frying snacks while very few manufacturers used coconut and other plant oils. Of the manufacturers surveyed, 95% used palm oil for making wade while only 5% used coconut oil. A similar trend was observed with other snacks except for making French fries. It was revealed that 70% used palm oil and 30% used other plant oils for making French fries. Furthermore, it was revealed that 91% of the producers used oil only for one day while 9% used oil for two days for making manioc chips and flour based snacks. A similar trend with slight variations was observed with other snacks. It was observed that most French fries manufacturers topped up fryers with fresh oil as the oil level depleted. Manioc chips contained the highest total fat content ($32.16 \pm 1.80\%$) while Chinese rolls contained the lowest ($10.52 \pm 2.34\%$) (p < 0.001). The predominant trans fatty acids identified in snacks were C18:1n9t, C18:2n6t and C18:3n9t. Total trans fat content on the basis of total fat varied from 1.16 to 1.82%. French fries contained the highest tran fat content while the flour based snacks contained the lowest (p<0.0038). The generation of high levels of TFA in snacks tested may be attributed to the reuse of oils many a time and the practice of topping up when the oil level depletes.