Investigation of trans fatty acids in margarine, edible cooking oils, and repeatedly used deep-frying oils

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Trans fatty acids have been considered as blood cholesterol inducers similar to saturated fatty acids. Foods contain high amount of trans fatty acids may pose a risk of cardiovascular diseases to consumers. This study aimed to investigate the presence of trans fatty acids in fat food products available in the Thai market. Seventy-three samples of refined cooking oils (53 samples), shortening (1 sample), margarine (7 samples), butter (6 samples), and repeatedly used deep-frying oils (6 samples) were collected from supermarkets and food street venders. Percentage of trans fatty acids including tC18:1 and tC18:2 were determined by Gas Liquid Chromatography. It was found that only two of edible cooking oil (rice bran oil and palm oil) had no trans fats. The rest of the edible cooking oils contained trans fatty acids ranging from 0.02-0.56%. Total trans fatty acids (tC18:1 and tC18:2) in safflower oil, corn oil, and soybean oil were 0.56%, 0.52% and 0.45%, respectively. Safflower oil contained highest amount of tC18:2 (0.56%) while soybean oil contained highest amount of tC18:1 (1.73%). Moreover, it was confirmed that shortening and margarine available in the market contained high amounts of trans fats. Trans fats in shortening was 5.8% (tC18:1 = 4.76% and tC18:2 = 1.04%) and in margarine was 2.32+3.76% (0.5-9.04%; tC18:1 = 2.24+3.71% and tC18:2 = 0.20+0.04%). Furthermore, butter also contained trans fatty acids (0.93+0.26%; tC18:1 = 0.35+0.15 and tC18:2 =0.57+0.20). Finally, repeatedly used deep-frying oils (TPC ~ 18-29%) also contained both tC18:1 and tC18:2 (0.21±0.14%). Therefore, not only hydrogenated fats and its products contained trans fat. Producers and consumers should be aware of all products contain fat passing the heat process.

Keyword : Trans Fatty acid, edible cooking oils, repeatedly used deep-frying oils, margarine, butter