

Physico-chemical and sensory properties of fat based edible spreads in Sri Lankan market

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Fat-based edible spreads mainly consist of dairy fat based edible spreads (butter and dairy fat spreads) and non-dairy fat based edible spreads (margarine and fat spreads). The present study mainly focused on benchmarking of fat based edible spreads using the sensory and physico-chemical analysis to evaluate consumer preference and position of quality of the fat based edible spreads. Twenty four commercial samples of fat based edible spreads were tested for physico-chemical and sensory properties. Sensory evaluation was done by using 15 trained panellists based on the 9-hedonic scale. Moisture content, slip Point, colour, water activity and solid fat content (N values) at 10 °C, 20 °C, 30 °C, 35 °C, 40 °C were determined as physical properties, and fat content, free fatty acid content, salt content, peroxide value, and the fatty acid profile including saturated (SFA), mono-unsaturated (MUFA), poly-unsaturated (PUFA), trans fatty acids (TFA) were tested as chemical properties. Duncan's multiple range test (DMRT) was done for the mean score rating for sensory analysis and least Squares Means of General Linear Model was carried out for mean separation of physico-chemical analysis by using SAS 9.1.3, (1999) program. Sensory analysis of fat based edible spreads showed that the samples differed significantly ($\alpha \leq 0.05$). Non-dairy fat based edible spreads, except the margarine had good mean score in aroma, colour, appearance and spreadability but in the overall taste, buttery taste and saltiness are very high in salted butter than the other spreads. Moisture content varied from 14.65 to 46.27 %, slip point from 28.3 to 36.3 °C, water activity from 0.692 to 0.973, red colour from 1.17 to 4.17 and yellow colour from 45.33 to 70.00 on tintometer scale. Total solid fat contents (N value) were also measured from 10 to 40 °C. Fat content of the samples varied from 20.07% to 81.37 %, free fatty acid level from 0.18 to 0.79%, salt content from 0.01 to 2.20 % and peroxide value from 0.08 to 15.77 (meq/kg). According to fatty acid profiles analyzed, high saturated (SFA) and trans- (TFA) fat could occur in butter, margarine and dairy fat spreads. However, high mono-unsaturated (MUFA) and poly-unsaturated (PUFA) fat could be occurring in non-dairy fat based edible spreads.

Key words: fat based edible spreads, margarine, physico-chemical properties, sensory evaluation, Sri Lankan market

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