



Application of buffalo butter oil fractions for the preparation of modified spread butter

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Abstract

The butter oil of buffalo milk has relatively low concentrations of unsaturated fatty acids (USFA), which makes its usage limited in food industries. Thus, the aim of this study was to increase the low solids content as a modified buffalo's butter oil (BO) fractions by multi-step dry fractionation at different temperatures (15, 25, and 35°C) to gain three solid fractions (S15, S25, and S35) and three liquid fractions (L15, L25, and L35). Some buffalo fractions were reformed to produce modified butter (MB) by using various milk fat fractions at ratios L15:L25:S15 (7:2:1 and 8:1:1) L15:L25:S25 (6:3:1 and 7.5:1.5:1), and L15:S15:S25 (7:2:1) blend for, MB1, MB3, MB2, MB5, and MB4 respectively. The chemical characteristic such as chemical composition, fatty acids, and solid fat content (SFC) of MB were studied. Furthermore, the thermal behavior, texture, and sensory properties were evaluated and compared with native BO. The collected fraction of L15 significantly increased the MUNSFA, PUSFA, $\omega 6:\omega 3$ ratio, iodine value, and oxidative stability index (OSI), and decreased the slip melting point (SMP), cholesterol content, atherogenicity index (AI), thermo biogenicity index (TI), firmness and stickiness. The MB5 sample had the highest overall acceptability by the panelists on fresh and 90 days stored samples. The MBS was contained PUSFA from 3.98 to 4.80 mg/100g which improved the nutritional value and beneficial for health.

Keywords

Buffalo butter oil ; multi-step fractionation ; fatty acids

Main Subjects

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