Comparison of quality characteristics between compound and pure milk chocolate

ABSTRACT

Cocoa butter substitute (CBS) base compound chocolate presents outstanding problems associated with a poor tolerance between CBS and cocoa butter (CB). This study focuses on the determination of the best blend (CBS: CB) of compound milk chocolate which has a similar characteristic as pure milk chocolate. The analysis includes color (Hunter Lab), fatty acid content (gas chromatography/GC), melting properties (Differential Scanning Calorimetry/DSC) and texture. Color (L value) of the compound chocolate (ratio of 20:80) was significantly (p<0.05) darker (25.50±0.20) than pure milk chocolate (27.22±0.32). GC analysis shows decreased of total lauric acid (41.17, 36.49, 23.77, 26.43, 2.88 and 2.12 respectively) with the increased of CB (0% to 100%) and decreased of CBS (100% to 0%). DSC analysis also shows increased of CB addition (100:0, 60:40 and 40:60) in compound milk chocolate caused significant (p<0.05) reduction of Tpeak value (35.37°C±0.05, 33.90°C±0.00 and 30.24°C±0.13 respectively) compared to pure milk chocolate (29.96°C±0.00). The ratio 20:80 of compound milk chocolate shows similar quality characteristic as pure milk chocolate in terms of fatty acid composition (lauric acid 2.88%) and hardness (2832.3±8.88). This finding highlights the application of CB and CBS blend in compound milk chocolate which may provide the best alternatives to the chocolate producer.

Keyword: Cocoa butter; Cocoa butter substitutes; Melting profiles; Milk chocolate; Fatty acids