

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 ($35.37^{\circ}\text{C} \pm 0.05$, $33.90^{\circ}\text{C} \pm 0.00$ and $30.24^{\circ}\text{C} \pm 0.13$ respectively) compared to pure milk chocolate ($29.96^{\circ}\text{C} \pm 0.00$). 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