Abstract

Stability of Chocolates Enriched with Cocoa Shell during Storage [†]

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Abstract: The stability of chocolate is mainly influenced by cocoa butter re-crystallization during storage, shown through fat bloom (appearance of white layers of cocoa butter on chocolate surface). The aim of this study was to examine the influence of cocoa shell addition on stability of dark and milk chocolate over a one-year storage period. Dark and milk chocolates were produced in a ball mill. Four chocolates were produced, two with the addition of cocoa shell (5% in milk and 15% in dark) and two control chocolates without the addition. The effect of cocoa shell on chocolate stability was examined by determining total color change and whiteness index (calculated from parameters L*, a* and b* determined using chromameter), total polyphenol content (TPC) (using the Folin–Ciocalteu method) and thermo-physical properties (using differential scanning calorimetry). Total color change and whiteness index were lower in chocolates with cocoa shell than in control samples. Over a period of one year, milk and dark chocolate with cocoa shell had lower enthalpy. Total polyphenol content in all chocolates did not change significantly through the storage period, although chocolates with cocoa shell had lower TPC because part of the cocoa liquor was replaced with cocoa shell.

Keywords: chocolate; cocoa shell; polyphenols; ball mill; chocolate stability

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