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Title : The effect of Sucrose Fatty Acid Esters for fat bloom

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【Announcement Summary】

During storage, chocolate can develop lipid-derived bloom, resulting in a dull or whitened surface, which can affect the chocolate's texture and flavor and impact its quality. One cause of this is the polymorphic transition of cocoa butter (CB) within chocolate. We have demonstrated that our emulsifier, Sucrose Fatty Acid Esters (SE's), inhibits this transition and delays bloom.

Chocolate containing SE's was stored under temperature cycles (20 and 32 degC, 12 hours each) and the number of days for bloom to occur was assessed. Chocolate containing POS-135, P-170, S-170, and S-570 exhibited delayed blooming compared to untreated chocolate. As a model experiment, X-ray diffraction (XRD) and differential scanning calorimetry (DSC) were performed on CB containing SE's at various storage days, demonstrating that SE's delays the polymorphic transition from b₂(Form V) to b₁(Form VI), which is thought to be the cause of bloom.

【About Sucrose Fatty Acid Esters】

Sucrose fatty acid esters are food emulsifiers derived from sugar cane, beet and vegetable oil. Because the eight hydroxyl groups of sucrose can be bonded to fatty acids, they possess a wide range of hydrophilic-hydrophobic balance (HLB). In this study, we used our sucrose fatty acid ester brand "RYOTO™ Sugar Esters," which are POS-135 (HLB1, palmitic-oleic-stearic mixed fatty acid), P-170 (HLB1, palmitic fatty acid), S-170 (HLB1, stearic fatty acid), and S-570 (HLB5, stearic fatty acid).

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