

Effect of Non-Fat Solid Ratio on Bloom Formation in Untempered Chocolate

Authors : Huanhuan Zhao, Bryony J. James

Abstract : The relationship between the non-fat solid ratio and bloom formation in untempered chocolate was investigated using two types of chocolate: model chocolate made of varying cocoa powder ratios (46, 49.5 and 53%) and cocoa butter, and commercial Lindt chocolate with varying cocoa content (70, 85 and 90%). X-ray diffraction and colour measurement techniques were used to examine the polymorphism of cocoa butter and the surface whiteness index (WI), respectively. The polymorphic transformation of cocoa butter was highly correlated with the changes of WI during 30 days of storage since it led to the redistribution of fat within the chocolate matrix and resulted in a bloomed surface. The change in WI indicated a similar bloom rate in the chocolates, but the model chocolates with a higher cocoa powder ratio had more pronounced total bloom. This is due to a higher ratio of non-fat solid particles on the surface resulting in microscopic changes in morphology. The ratio of non-fat solids is an important factor in determining the extent of bloom but not the bloom rate.

Keywords : untempered chocolate, microstructure of bloom, polymorphic transformation, surface whiteness

Conference Title : ICFSF 2018 : International Conference on Food Structure and Functionality

Conference Location : Singapore, Singapore

Conference Dates : January 08-09, 2018