RHEOLOGICAL PROPERTIES OF WHITE CHOCOLATE WITH RESISTANT STARCH

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ABSTRACT

White chocolate is confectionery product produced of sugar, cocoa butter, milk solids, lecithin and vanillin where the particles of sugar and milk solids are covered by fatty phase, mainly consisted of cocoa butter. White chocolate must include whole milk powder and cocoa butter in its composition, and, unlike dark and milk chocolate, it does not contain dark cocoa solids. Therefore, white chocolate lacks of valuable components such as polyphenols, minerals, and dietary fiber. Thus, the functionality of white chocolate is very low compared to dark and milk chocolate.

Dietary fibers certainly represent some of the possible functional components and among them resistant starch as a special type of dietary fiber with functional proper-ties. In the present study, 5%, 10%, and 15% of white chocolate was substituted with resistant starch in order to improve the nutritional value of enriched white chocolate. Rheological measurements were performed first since they predict interactions of components within the system and behavior during chocolate processing. Resistant starch addition increased water and dietary fiber content and also reduced volume mean diameter of white chocolate samples that further influenced their rheological properties. The addition of resistant starch caused the reduction of white chocolate fat phase consisted of cocoa butter and milk fat and thus increased Casson viscosity of white chocolate mass in accordance with the added amount. Also, the addition of all amounts of resistant starch to white chocolate increased the values of Casson yield stress that relates to energy required to initiate chocolate flow. However, RS did not impair the color and sensory characteristics of enriched white chocolates.

Keywords: white chocolate, resistant starch, dietary fiber, viscosity, yield stress

Keywords: mass, chocolate, particle size, particle size distribution, Malver Mastersizer, quality, food technology