

ABSTRAK

DESAIN PROSES PENGOLAHAN COKELAT SUSU TAHAN PANAS DENGAN VARIASI KADAR LEMAK DAN PROPORSI GULA SEMUT YANG DIPRODUKSI MENGGUNAKAN *MELANGER* YANG DIMODIFIKASI SERTA KARAKTERISASI KUALITAS PRODUK

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Cokelat susu memiliki titik leleh 33-37°C. Indonesia memiliki suhu tahunan maksimal rata – rata di atas 33°C yang memungkinkan cokelat dapat meleleh sebelum sampai di tangan konsumen. Titik leleh cokelat antara lain dipengaruhi oleh kristal pada lemak kakao dan *sugar network*. *Sugar network* merupakan peristiwa pengikatan partikel cokelat oleh bahan yang memiliki kadar air yang tinggi dengan ditandai oleh adanya aglomerasi. Peningkatan kadar air dapat dilakukan dengan menambahkan gula semut dengan proporsi tertentu. Penelitian ini bertujuan untuk mengkaji pengaruh kadar lemak dan proporsi gula semut terhadap karakteristik cokelat susu yang meliputi kadar air, reologi, ukuran partikel, kekerasan, warna dan mikroskopi, dan mengkaji potensi penambahan gula semut untuk meningkatkan kestabilan cokelat terhadap panas. Cokelat susu dibuat dengan formulasi bubuk kakao 22,6%, kakao massa 18,2%, total gula 25%, dan total susu 20%. Variasi dari penelitian ini terdiri dari variasi kadar lemak 30%, 32%, 34% dan variasi proporsi gula semut 0%, 25%, 50%, 75% dan 100%. Hasil penelitian menunjukkan bahwa peningkatan proporsi gula semut memiliki pengaruh pada nilai kadar air, casson yield value, casson viscosity, kekerasan, L*, a*, dan b*, namun tidak berpengaruh pada nilai thixotrophy dan ukuran partikel. Kemudian, peningkatan kadar lemak memiliki pengaruh terhadap nilai casson yield value, casson viscosity, thixotrophy, kekerasan dan L* tetapi tidak berpengaruh pada a*, b*, kadar air dan ukuran partikel. Berdasarkan hasil penelitian, dapat diketahui bahwa penambahan gula semut menyebabkan terbentuknya *sugar network* yang ditandai dengan peningkatan nilai kekerasan dan aglomerasi. Kekerasan optimal tercapai pada cokelat susu dengan kadar lemak 30% dan proporsi gula semut 100%.

Kata Kunci: aglomerasi, cokelat susu, gula semut, *sugar network*

ABSTRACT

PROCESSING DESIGN OF HEAT RESISTANT MILK CHOCOLATE WITH VARIATIONS OF FAT CONTENT AND PROPORTION OF PALM SAP SUGAR PRODUCED USING MODIFIED MELANGER AND THE PRODUCT QUALITY CHARACTERIZATION

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Milk chocolate has a melting point of 33-37°C. Indonesia has maximum average annual temperature above 33°C which allows chocolate to melt before reaching consumers. The melting point of chocolate is influenced by cocoa fat crystal and possible sugar network formed. The high-moisture sugar binds chocolate particles, resulting in agglomerates. This study aimed to examine the effect of fat content and the proportion of palm sugar on the characteristics of milk chocolate, including moisture content, rheology, particle size, hardness, color and agglomeration level. In addition, the effect of palm sugar in increasing the heat stability of chocolate against temperature was also investigated. Milk chocolate was made with 22.6% cocoa powder, 18.2% cocoa mass, 25% total sugar, and 20% skim milk. Regarding the fat content, milk chocolate was made with fat content of 30%, 32%, 34% and variations in the proportion of palm sugar, namely 0%, 25%, 50%, 75% and 100%. The results showed that the increase in the proportion of palm sugar had an effect on the value of moisture content, casson yield value, casson viscosity, hardness, L *, a *, and b *, but did not affect the value of thixotrophy and particle size. Then, the increase of fat content influenced the casson yield value, casson viscosity, thixotrophy, hardness and L * but did not affect a *, b *, moisture content and particle size. Based on the results of the study, it can be seen that the addition of palm sugar created possible sugar networks formation which were characterized by an increase in the value of hardness. Milk chocolate with proportion of palm sugar of 100% and 30% fat content had the potential as a heat resistant chocolate.

Keywords: agglomeration, milk chocolate, palm sugar, sugar network