

**PENGARUH RASIO *WHEY PROTEIN ISOLATE* DAN SUSU SKIM,
SERTA PENAMBAHAN XANTHAN GUM TERHADAP STABILITAS
EMULSI SUSU KENTAL MANIS REKOMBINASI YANG
DIPERKAYA MINYAK SAWIT MERAH**

INTISARI

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Peningkatan konsumsi susu terutama susu kental manis, berkaitan erat dengan semakin berkembangnya teknologi rekombinasi susu yang menjamin kestabilan produksinya. Selain itu, penggantian sebagian atau keseluruhan lemak susu dengan minyak nabati juga dinilai lebih ekonomis bagi industri. Minyak sawit merah merupakan salah satu minyak nabati yang berpotensi digunakan pada susu rekombinasi susu karena kandungan karotenoidnya yang tinggi (781 ppm) mampu difungsikan untuk fortifikasi provitamin A. Proses pembuatan susu kental manis rekombinasi memiliki prosedur yang sama dengan pembuatan emulsi minyak dalam air. Perbedaan karakter antara RPO dan lemak susu memungkinkan munculnya potensi ketidakstabilan pada emulsi. Sehingga perlu dilakukan kajian terhadap upaya yang mungkin dilakukan, diantaranya adalah dengan meningkatkan viskositas melalui penambahan stabilizer serta peningkatan interaksi elektrostatis antara polisakarida dan komponen protein yang mampu menghambat pergerakan droplet sehingga kestabilan emulsi akan terjaga.

Stabilitas emulsi SKM dievaluasi menggunakan nilai IAE, viskositas, total karotenoid, warna, serta kenampakan visual. Dan hasil penelitian menunjukkan bahwa penambahan xanthan gum menghasilkan emulsi yang stabil dengan nilai viskositas baik dan laju pembentukan sedimen terhambat. Pada taraf penggunaan xanthan gum sebesar 0,1% dan rasio WPI:Skim 65:35, akan dihasilkan emulsi SKM dengan tingkat stabilitas yang cukup baik, yaitu dengan nilai viskositas 2617,33 cP; IAE 35,04 m²/g; total karotenoid 112,06 ppm dan stabilitas karoten sebesar 95,57%, serta tidak terjadi pemisahan fase hingga hari ke-30 pengamatan.

Kata kunci : susu kental manis rekombinasi, minyak sawit merah, emulsi, *stabilizer*, *whey protein isolate*, xanthan gum, stabilitas emulsi

THE EFFECT OF WHEY PROTEIN ISOLATE AND SKIMMED MILK RATIO, AND THE ADDITION OF XANTHAN GUM ON EMULSION STABILITY OF RECOMBINED SWEETENED CONDENSED MILK ENRICHED BY RED PALM OIL

ABSTRACT

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The increasing of milk consumption, especially for sweetened condensed milk, is closely related to the development of milk recombination technology that guarantees a stable production. In addition, the replacement of part or all of milk fat by vegetable oil is also considered more economical for the industry. Red palm oil is one of the vegetable oils that potential to be used in milk recombination due to its high carotenoid content (781 ppm), that capable on provitamin A fortification. The process of making recombined sweetened condensed milk has a similar procedure of making oil-in-water emulsions. The difference on character between RPO and milk fat allows a potential instability in the emulsion. So it is necessary to conduct further studies on the possible efforts, including by increasing viscosity through the addition of stabilizers and increasing electrostatic interactions between polysaccharides and protein components that can inhibit the movement of droplets, so the emulsion will be stable.

The stability of the SCM emulsion was evaluated using EAI values, viscosity, total carotenoids, color, and visual appearance. And the results showed that the addition of xanthan gum produced a stable emulsion with good viscosity value and the rate of sediment formation was inhibited. At xanthan gum level of 0,1% and WPI: Skim ratio at 65:35, made a good stability level of SCM emulsion, with a viscosity value was 2617,33 cP; EAI was 35,04 m²/g; total carotenoids was 112,06 ppm and carotene stability was 95,57%, and there was no phase separation until the 30th day of observation.

Keyword : recombined sweetened condensed milk, red palm oil, emulsion, stabilizer, whey isolate protein, xanthan gum, emulsion stability