

RINGKASAN

Susu jagung merupakan salah satu bahan dasar yang dapat digunakan dalam pembuatan keju *cheddar* analog. Proses pembuatan keju *cheddar* analog pada dasarnya diperlukan bahan tambahan yang berfungsi untuk meningkatkan tekstur dan meningkatkan rendemen diantaranya, yaitu *whey protein concentrate*. Selain itu terdapat bahan yang digunakan untuk menstabilkan kandungan air dan lemak yang diperlukan adanya *emulsifier*, misalnya Tween-80 dan Span-80. Penelitian ini bertujuan untuk 1) mengetahui proporsi formula terbaik antara WPC (*Whey Protein Concentrate*) dan *emulsifier* jenis Tween-80 dan Span-80 untuk menghasilkan keju *cheddar* analog berbasis susu jagung. 2) mengetahui pengaruh variasi konsentrasi WPC (*Whey Protein Concentrate*) terhadap sifat fisik, kimia, dan sensori keju *cheddar* analog yang dihasilkan, dan 3) mengetahui pengaruh variasi konsentrasi *emulsifier* jenis Tween-80 dan Span-80 terhadap sifat fisik, kimia, dan sensori keju *cheddar* analog yang dihasilkan.

Penelitian ini merupakan penelitian dengan metode eksperimental yang dilaksanakan di Laboratorium Teknologi Pertanian, Fakultas Pertanian, dan Laboratorium Ilmu Bahan Makanan Ternak, Fakultas Peternakan Universitas Jenderal Soedirman pada bulan Desember 2018 sampai April 2019. Rancangan percobaan yang digunakan adalah RAK (Rancangan Acak Kelompok) dengan dua faktor perlakuan, yaitu WPC (*Whey Protein Concentrate*) (W) terhadap susu jagung yang terdiri dari 3 taraf yaitu konsentrasi 20% (W1), konsentrasi 25% (W2), dan konsentrasi 30% (W3). Faktor penambahan jenis *emulsifier* (E) terdiri dari 3 taraf, yaitu Tween-80 1% (E1), Span-80 1% (E2), dan Tween-80:Span-80 1% (E3). Variabel yang diamati pada penelitian ini terdiri dari variabel fisikokimia dan variabel sensori. Data variabel fisikokimia dan sensori dianalisis menggunakan Uji F taraf 5%, apabila hasil analisis menunjukkan pengaruh yang nyata maka dilanjutkan dengan Uji *Duncan's Multiple Range Test* taraf 5%. Penentuan formula dan perlakuan terbaik menggunakan Uji Indeks Efektivitas.

Hasil penelitian menunjukkan proporsi formula terbaik keju *cheddar* analog adalah konsentrasi WPC (*Whey Protein Concentrate*) 30%, dan *emulsifier* jenis Tween-80 sebesar 1% (W3E1) karena memiliki nilai rendemen 63,23%, pH 5,7, total padatan terlarut 31,75°Brix, kadar air 59,24%, kadar protein terlarut 10,07%bk, kadar lemak 13,65%bk, total asam tertitiasi 1,53 dengan sensori warna putih kekuningan, aroma sedikit khas keju, rasa agak asin, tekstur tidak keras, dan agak suka secara keseluruhan. Variasi konsentrasi WPC (*Whey Protein Concentrate*) yang berbeda memberikan pengaruh terhadap nilai rendemen, kadar air, kadar protein terlarut dan kadar lemak. Variasi jenis *emulsifier* yang berbeda memberikan pengaruh terhadap nilai kadar air, dan kadar protein.

SUMMARY

Corn milk is one of the basic ingredients that be used in making analog cheddar cheese. Basically, the processing need additional ingredients which increase the texture and sucrose content including whey protein concentrate. In addition, there are some materials used to stabilize the water and fat content required emulsifiers, such as Tween-80 and Span-80. The objective of this research was to 1) determine the proportion of the best formula between WPC (Whey Protein Concentrate) and type emulsifiers of Tween-80 and Span-80 to produce analog cheddar cheese based of corn milk. 2) determine the effect of variations in the concentration of WPC (Whey Protein Concentrate) on the physical, chemical, and sensory sifacts of analog cheddar cheese produced. and 3) determine the effect of variations in the emulsifier types of Tween-80 and Span-80 on physical, chemical, and sensory sifacts analog cheddar cheese produced.

This research was using an experimental research method in the Laboratory of Agricultural Technology, Faculty of Agricultur, and Laboratory of Animal Food Science, Faculty of Animal Husbandry, Jenderal Soedirman University from December 2018 until April 2019. The experimental was using a Randomized Block Design (RAK) with two treatment factors there are WPC (Whey Protein Concentrate) (W) on corn milk consisting of 3 levels, i.e a concentration of 20% (W1), 25% (W2), and 30% (W3). The addition factor of the emulsifier's type (E) consists of 3 levels there are Tween-80 1% (E1), Span-80 1% (E2), and Tween-80: Span-80 1% (E3). The variables observed in this study consisted of physical variables and sensory variables. Data on physicochemical and sensory variables were analyzed using *F* test amount 5% if the treatment effect on the observed variable then followed by Duncan's Multiple Range Test (DMRT) amount 5%. The determination of the best formula and treatment was using the Effectiveness Index Test.

The results showed that the proportion of the best formula of analog cheddar cheese was obtained by using 30% of WPC (Whey Protein Concentrate), and 1% (W3E1) Tween-80 of emulsifier concentration. It had a sucrose content of 63.23%, pH 5.7, total solids dissolved 31.75°Brix, water content 59.24%, dissolved protein content 10.07%bk, fat content 13.65%bk, total acid titrated 1.53 with sensory yellowish white (color), slightly typical cheese (aroma), slightly salty (taste), it is soft (texture), and overall acceptance (like). The variations in WPC concentration have an effect on the sucrose content, water content, dissolved protein, and fat content. The different variations of emulsifier's type influence to the value of water content, and protein content.