

RINGKASAN

Es krim merupakan olahan campuran susu yang dibuat melalui pembekuan dan pengadukan. Seiring perkembangan di bidang pangan, umbi-umbian dapat ditambahkan pada es krim sehingga memengaruhi variabel sensori. Jenis umbi yang dapat digunakan pada es krim adalah ubi jalar dengan kandungan pati yang tinggi, kaya akan vitamin, pektin, dan mineral. Ubi jalar yang potensial ditambahkan pada es krim adalah ubi jalar madu Pasrujambe dengan warna kuning cerah dan memiliki rasa manis. Dalam pembuatan es krim, bahan lemak seperti susu *fullcream* berpengaruh terhadap *overrun*, laju leleh, *hardness*, dan organoleptik. Namun, penggunaan bahan lemak berupa susu *fullcream* akan menghasilkan es krim dengan kadar lemak yang tinggi. Dalam upaya untuk mengembangkan es krim dengan kadar lemak yang lebih rendah, maka dilakukan upaya mengganti sebagian susu *fullcream* dengan susu skim. Tujuan penelitian ini untuk mengetahui proporsi penambahan ubi terhadap karakteristik fisikokimia dan sensori, mengetahui pengaruh dan proporsi susu *fullcream* dan susu skim terhadap karakteristik fisikokimia dan sensori, dan untuk mengetahui kombinasi perlakuan terbaik antara proporsi ubi dan proporsi susu *fullcream* dan susu skim.

Pada penelitian ini, digunakan Rancangan Acak Kelompok (RAK) dengan faktor yang diuji adalah perlakuan variasi penambahan ubi terhadap total susu yang digunakan (25%, 50%, dan 75%) dan proporsi antara susu *fullcream* dan susu skim (25 mL : 75 mL, 50 mL : 50 mL, dan 75 mL : 25 mL). Variabel karakteristik fisik yang diamati meliputi *overrun*, total padatan, dan densitas; karakter kimia yang diamati meliputi kadar lemak, kadar beta karoten, dan kadar gula total; karakteristik sensori yang diamati meliputi warna, *flavor*, aroma, tekstur, rasa, dan kesukaan. Hasil pengujian karakteristik fisikokimia jika normal dan homogen dianalisis menggunakan ANOVA dan dilanjutkan dengan DMRT jika berpengaruh nyata; jika normal namun tidak homogen dianalisis menggunakan ANOVA *Welch* dan dilanjutkan dengan Games Howell jika berpengaruh nyata; dan jika tidak normal dianalisis menggunakan *Kruskal wallis* dan dilanjutkan dengan Mann Whitney jika berpengaruh nyata. Hasil pengujian karakteristik sensori dianalisis menggunakan uji *Friedman* dan dilanjutkan dengan uji Wilcoxon jika berpengaruh nyata. Penentuan perlakuan terbaik dilakukan dengan uji Indeks Efektivitas *De garmo*.

Hasil penelitian menunjukkan bahwa perlakuan penambahan ubi tidak berpengaruh pada parameter fisikokimia, namun penambahan proporsi susu *fullcream* dan susu skim berpengaruh nyata terhadap kadar lemak dan kadar beta karoten. Kombinasi perlakuan yang dihasilkan antara penambahan ubi dan penambahan proporsi susu *fullcream* dan susu skim berpengaruh nyata terhadap kadar lemak dan kadar beta karoten es krim yang dihasilkan. Dari segi sensori, penambahan ubi dan proporsi penambahan proporsi susu *fullcream* dan susu skim berpengaruh sangat nyata terhadap warna, *flavor*, aroma, tekstur, dan kesukaan. Kombinasi perlakuan terbaik yang didapat adalah U1S2 (penambahan ubi 25 g dan proporsi susu *fullcream* dan susu skim 50 mL : 50 mL) dengan nilai *overrun* 41,82%; total padatan 63,343%; densitas 0,852 g/mL; kadar lemak 5,470%; kadar beta karoten 4,484 µg /100 g; dan kadar gula total 34,389% yang sudah memenuhi

nilai SNI No. 01-3713-2018. Dari kombinasi perlakuan tersebut, didapat nilai sensori putih agak krem (5,97); *flavor* enak (5,07); aroma khas es krim (5,17); tekstur lembut (5,03); rasa manis (5,30); dan kesukaan suka (5,10).



SUMMARY

Ice cream is a processed mixture of milk made through freezing and churning. Along with developments in food sector, tubers can be added to ice cream, thereby affecting sensory variables. One type of tuber that can be used is sweet potato, which contains high starch and rich vitamins, pectin, and minerals. A potential sweet potato that can added to ice cream is Pasrujambe honey sweet potato, which has yellow color and sweet taste. In ice cream production, fat-based ingredients such as full cream milk influence overrun, melting rate, hardness, and organoleptic properties. However, using full cream milk makes the ice cream high in fat. To develop ice cream with lower fat content, an attempt was made to substitute part of the full cream milk with skim milk. This study aims to determine the effect of sweet potato proportion on physicochemical and sensory characteristics, to examine the influence and proportion of full cream milk and skim milk on physicochemical and sensory characteristics, and to identify the best treatment combination between sweet potato proportion and the proportions of full cream and skim milk.

A Randomized Block Design (RBD) was used with two factors: the variation in sweet potato addition to the total milk used (25%, 50%, and 75%), and the proportion of full-cream milk to skim milk solution (25 mL : 75 mL, 50 mL : 50 mL, and 75 mL : 25 mL). The observed physical parameters included overrun, total solids, and density; the chemical parameters included fat content, beta-carotene content, and total sugar content; and the sensory attributes assessed were color, flavor, aroma, texture, taste, and overall liking. Data from physicochemical analyses that normal and homogeneous were analyzed using ANOVA, followed by DMRT if significant; normal but non-homogeneous data were analyzed with Welch ANOVA and continued with Games-Howell if significant; and non-normal data were analyzed using Kruskal-Wallis followed by Mann-Whitney if significant. Sensory analysis data were evaluated using the Friedman test and followed by Wilcoxon test if significant. The best treatment combination was determined using De garmo's Effectiveness Index test.

The results showed that the addition of sweet potato did not affect the physicochemical parameters, but the proportion of full-cream milk and skim milk solution significantly influenced fat content and beta-carotene levels. The combination of sweet potato and full-cream/skim milk proportions significantly affected the fat and beta-carotene content of the resulting ice cream. From the sensory perspective, both sweet potato addition and the proportion of full-cream and skim milk significantly influenced color, flavor, aroma, texture, and overall liking. The best treatment combination was U1S2 (25 g sweet potato and 50 mL : 50 mL full-cream milk to skim milk ratio) with an overrun value of 41.82%; total solids 63.343%; density 0.852 g/mL; fat content 5.470%; beta-carotene content 4.484 µg/100 g; and total sugar 34.389%, which met the SNI No. 01-3713-2018 standard. Sensory scores of this combination were off-white color (5.97); pleasant flavor (5.07); typical ice cream aroma (5.17); smooth texture (5.03); sweet taste (5.30); and overall liking (5.10).