

KUALITAS FISIK, SENSORIS, DAN AKTIVITAS ANTIOKSIDAN ES KRIM DENGAN SUBSTITUSI EKTRAK KUBIS MERAH (*Brassica oleraceae* var. *capitata* f. *rubra*)

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INTISARI

Kubis merah mengandung antosianin yang dapat berperan sebagai antioksidan. Penelitian ini bertujuan untuk mengkaji sifat fisik, sensoris, serta aktivitas antioksidan es krim dengan substitusi ekstrak kubis merah. Penelitian es krim ini terdiri dari 3 perlakuan ekstrak kubis merah yang disubstitusi pada susu sapi dengan level 0; 15; dan 30% dengan replikasi 3 kali. Parameter yang diamati meliputi kualitas fisik (titik leleh, *overrun*, *total solid*), sensoris (tekstur, rasa, warna, aroma, dan *overall*), dan aktivitas antioksidan. Data yang diperoleh dianalisis dengan *one-way analysis of variance* (ANOVA) dilanjutkan dengan *Duncan's New Multiple Range Test*. Data pengujian organoleptik dianalisis menggunakan metode uji Kruskal Wallis dan dilanjutkan dengan uji *Mann-Whitney*. Data hasil penelitian menunjukkan bahwa substitusi susu sapi dengan ekstrak kubis merah berpengaruh terhadap titik leleh, *overrun*, total solids, sensoris (aroma, rasa, keseluruhan), dan aktivitas antioksidan, tetapi tidak berpengaruh pada sensoris warna dan tekstur. Rerata kualitas fisik es krim dengan substitusi ekstrak kubis merah dengan level 0, 15, dan 30% berturut-turut memiliki titik leleh 24,00; 21,67; dan 19,67 menit, *overrun* 27,58%; 36,39%; dan 40,65%, total *solids* 51,39%; 45,95%, dan 41,77%. Rerata kualitas sensoris es krim berturut-turut memiliki skor aroma 5,82; 5,06; dan 4,09, rasa 5,94; 4,74; dan 3,62, *overall* 5,85; 5,09; dan 4,24. Rerata aktivitas antioksidan es krim berturut-turut 43,63%; 55,46%; dan 61,96%. Kesimpulan penelitian ini yaitu substitusi ekstrak kubis merah hingga 30% dapat meningkatkan kualitas fisik yaitu *overrun* dan aktivitas antioksidan, tidak mempengaruhi sensoris (tekstur dan warna) es krim, namun dapat menurunkan titik leleh, total solids, dan skor sensoris (aroma, rasa, *overall*) es krim.

Kata kunci: Es krim, Kubis merah, Sifat fisik, Sensoris, Aktivitas antioksidan

PHYSICAL, SENSORY, AND ANTIOXIDANT ACTIVITY QUALITY OF ICE CREAM WITH RED CABBAGE (*Brassica oleracea* var. *capitata* f. *rubra*) EXTRACT SUBSTITUTION

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ABSTRACT

Red cabbage contains anthocyanins, which can act as antioxidants. This study aims to evaluate the physical, sensory, and antioxidant activity properties of ice cream with red cabbage extract substitution. The ice cream study consisted of three treatments, where red cabbage extract was substituted for cow's milk at levels of 0%, 15%, and 30%, with three replications. The observed parameters included physical quality (melting point, *overrun*, total solids), sensory properties (texture, taste, color, aroma, and *overall* acceptance), and antioxidant activity. The obtained data were analyzed using one-way analysis of variance (ANOVA), followed by Duncan's New Multiple Range Test. Sensory evaluation data were analyzed using the Kruskal-Wallis test, followed by the Mann-Whitney test. The results showed that substituting cow's milk with red cabbage extract significantly affected the melting point, *overrun*, total solids, sensory properties (aroma, taste, *overall* acceptance), and antioxidant activity, but had no effect on sensory color and texture. The average physical quality of ice cream with 0%, 15%, and 30% red cabbage extract substitution had melting points of 24.00, 21.67, and 19.67 minutes, *overrun* values of 27.58%, 36.39%, and 40.65%, and total solid contents of 51.39%, 45.95%, and 41.77%, respectively. The average sensory quality scores for aroma were 5.82, 5.06, and 4.09; for taste, 5.94, 4.74, and 3.62; and for *overall* acceptance, 5.85, 5.09, and 4.24. The antioxidant activity of ice cream was 43.63%, 55.46%, and 61.96%, respectively. The conclusion of this study is that substituting red cabbage extract up to 30% can improve the physical quality of ice cream in terms of *overrun* and antioxidant activity, does not affect sensory texture and color, but decreases the melting point, total solids, and sensory scores for aroma, taste, and *overall* acceptance.

Keywords: Ice cream, Red cabbage, Physical properties, Sensory, Antioxidant activity