KARAKTERISTIK FISIKOKIMIA DAN KINETIKA DEGRADASI BETA-KAROTEN PADA PRODUK SOSIS SAPI YANG DISUBSTITUSI EMULSI GEL MINYAK SAWIT MERAH

INTISARI

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Penggunaan emulsi gel dengan minyak nabati pada sosis sapi dilakukan sebagai pengganti lemak hewani pada produk sosis sapi. Minyak nabati yang digunakan dalam emulsi gel yaitu minyak sawit merah yang mengandung kadar β-karoten tinggi. Pengaruh persentase substitusi lemak dengan emulgel (0%, 25%, 50%, 75%, 100%) menyebabkan penurunan pada nilai pH, lemak, angka peroksida, total kalori, warna, tekstur, dan *cooking loss* serta mengalami kenaikan pada kadar β-karoten, kadar air, kadar abu, dan karbohidrat. Hasil penelitian menunjukkan sosis sapi dengan substitusi emulgel 75% sebagai pengganti lemak memiliki karakteristik paling baik dengan kadar β-karoten 196,14±12,11 ppm, kadar lemak 11,76±0,90 %db, kadar protein 37,65±1,16 %db, kadar air 66,83±0,49 %wb, kadar abu 6,33±0,17 %db, karbohidrat 44,47±1,25 %db, angka peroksida 2,17±0,28 mEqO_2/kg, kalori 174,59±1,09 kkal/100g, nilai pH 5,72±0,12, *cooking loss* 4,57±0,24%, *hardness* 9,66±1,32 N, warna kuning cerah (ΔE = 8,36 terhadap sampel sosis dengan substitusi emulgel 25%). Sosis sapi dengan substitusi emulgel 75% sebagai pengganti lemak sapi yang disimpan pada suhu 10℃, 35℃, 45℃ selama 8 hari menggunakan metode Accelerate Shelf Life Testing (ASLT) pendekatan Arrhenius mengikuti orde pertama. Laju degradasi β-karoten pada penyimpanan suhu 10℃, 35℃, dan 45℃ berturut-turut yaitu 0,0626/hari; 0,1136/hari; dan 0,1405/hari, dan β-karoten akan bernilai 180 ppm pada hari ke 1,79 hari pada suhu penyimpanan 10℃, 0,99 hari pada suhu penyimpanan 35℃ dan 0,66 hari pada suhu penyimpanan 45℃.

Kata kunci: emulgel, β-karoten, minyak sawit merah, sosis, degradasi

PHYSICOCHEMICAL PROPERTIES AND BETA-CAROTENE DEGRADATION KINETICS OF BEEF SAUSAGE PRODUCT

ABSTRACT

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Emulsion gel incorporated with vegetable oil is used as a substitute for animal fat in beef sausage products. Red palm oil, used as vegetable oil, contains high levels of β-carotene. The effect of the percentage of fat substitution with emulgel (0%, 25%, 50%, 75%, 100%) caused decrease in pH value, fat, peroxide value, calories, color, texture, and cooking loss and increase in β-carotene, moisture, ash, and carbohydrate content. Based on the results of the study, the best beef sausage was obtained, that was beef sausage with 75% emulgel substitution as a fat substitute with β-carotene content of 196.14±12.11 ppm, fat content of 11.76±0.90 %db, protein content of 37.65±1.16 %db, moisture content of 66.83±0.49 %wb, ash content of 6, 33±0.17 %db, carbohydrate 44.47±1.25 %db, peroxide value 2.17±0.28 mEqO2/kg, calories 174.59±1.09 kcal/100g, pH value 5.72±0.12, cooking loss 4.57±0.24%, hardness 9.66±1.32 N, with bright yellow color (ΔE = 8.36 against sausage sample with 25% emulgel substitution). Beef sausage with 75% emulgel substitution as a substitute for beef fat stored at 10°C, 35°C, and 45°C for 8 days using the Accelerate Shelf Life Testing (ASLT) method of Arrhenius approach which follows the first order. The degradation rate of β-carotene at storage temperature of 10°C, 35°C, and 45°C, were 0.0626/day; 0.1136/day; 0.1405/day respectively, and β-carotene would be 180 ppm of 1.79 days at 10°C storage temperature, 0.99 days at 35°C storage temperature and 0.66 days at 45°C storage temperature.

Keywords: emulgel, β-carotene, red palm oil, sausage, degradation