

# Pengaruh penambahan kacang merah, ampas kedelai, dan textured vegetable protein terhadap kandungan nutrisi dan tekstur daging sapi sintetik = The effect of kidney bean, soy pulp, and textured vegetable protein addition towards the nutrient content and texture of synthetic beef

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## Abstrak

Konsumsi daging sapi dapat meningkatkan risiko timbulnya kanker, penyakit kardiovaskular dan jantung, serta tekanan darah tinggi atau hipertensi. Oleh karena berbagai dampak negatif tersebut, perlu dibuat sebuah produk pangan alternatif berupa daging sapi sintetik yang tetap mengandung nutrisi penting tetapi memiliki risiko kesehatan yang jauh lebih kecil. Dalam penelitian ini, protein dalam daging sapi sintetik diperoleh dari bahan baku berupa gluten, kacang merah, ampas kedelai, dan textured vegetable protein yang divariasikan konsentrasinya.

Berdasarkan hasil penelitian yang telah dilakukan, peningkatan konsentrasi tepung kacang merah dan textured vegetable protein dapat meningkatkan kadar abu, kadar protein, dan kadar lemak dalam daging sapi sintetik. Selain itu, peningkatan konsentrasi ampas kedelai dapat meningkatkan kadar air dan karbohidrat, menurunkan nilai kalori, dan mengurangi kekerasan daging sapi sintetik. Dari penelitian ini diperoleh daging sapi sintetik terbaik dengan kombinasi 60% gluten, 10% tepung kacang merah, 20% ampas kedelai, dan 10% textured vegetable protein diperoleh. Berdasarkan hasil analisis proksimat dan kalori, daging sapi sintetik terbaik mengandung 60,3% air, 0,6% abu, 19,3% protein, 4,5% lemak, 15,6 karbohidrat, dan 178 kkal/100 g.

Berdasarkan hasil texture profil analysis, daging sapi sintetik terbaik memiliki daya kohesif 0,570, kekerasan 5845,4, dan elastisitas 88,0. Daging sapi sintetik terbaik mengandung seluruh asam amino esensial dan memiliki kandungan lemak jenuh yang lebih rendah dibandingkan daging sapi. Dari penelitian ini, telah dapat dihasilkan daging sapi sintetik dengan kandungan nutrisi yang cukup dan risiko kesehatan yang jauh lebih rendah dibandingkan dengan daging sapi sehingga daging sapi sintetik dapat dijadikan sebagai bahan pangan alternatif pengganti daging sapi yang lebih sehat.

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Consumption of beef can increase the risk of cancer, cardiovascular and heart disease, and hypertension. Because of those disadvantages, an alternative food in the form of synthetic beef which contains almost the same amount of nutrient as the original beef but with less health risk can be made. In this research, the protein content of synthetic beef will be derived from gluten, kidney bean, soy pulp, and texturized vegetable protein which are varied in the concentration.

Based on this research, the increase of kidney bean flour and textured vegetable protein's concentration will increase the ash, protein, and fat content of synthetic beef. Meanwhile, the increase of soy pulp's concentration will increase the water and carbohydrate content, decrease the amount of calories, and reduce synthetic beef's hardness. This research has produced the best synthetic beef with a combination of 60% gluten, 10% kidney bean flour, 20% soybean pulp, and 10% texturized vegetable protein is obtained. According to the proximate and calorimetry analysis, the best synthetic beef contained 60.3% water, 0.6%

ash, 19.3% protein, 4.5% fat, and 15.6 carbohydrate, and 178 kkal/100 g. According to the texture profile analysis, the best synthetic beef has 0.570 cohesiveness, 5845.4 hardness, and 88.0 springiness. The best synthetic beef contains all essential amino acids and has less saturated fat in comparison to beef. Based on this research, a synthetic beef with sufficient amount of nutrient and less health risk has been produced. Therefore, synthetic beef is a healthy alternative food that can substitute original beef.