

## **PENGARUH JENIS BAHAN PENGIKAT TEPUNG BIJI LEGUM TERHADAP KUALITAS FISIK DAN MIKROSTRUKTUR BAKSO DAGING SAPI**

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### **INTISARI**

Penelitian ini bertujuan untuk mengetahui pengaruh penambahan tepung biji-bijian (*legum*) yang berbeda sebagai bahan pengikat terhadap kualitas fisik dan mikrostruktur bakso daging sapi. Materi yang digunakan dalam penelitian ini terdiri dari daging sapi, tepung tapioka, garam dapur, bawang putih, lada, ketumbar, *sodium tripolyphosphat* (STPP), minyak goreng, tepung kacang hijau, tepung kacang kedelai, tepung kacang merah, dan air. Perlakuan dalam penelitian ini adalah penambahan tepung kacang hijau, penambahan tepung kacang kedelai, penambahan tepung kacang merah. Parameter yang diamati pada penelitian ini adalah kualitas fisik meliputi pH bakso, daya ikat air, dan keempukan bakso serta kualitas mikrostruktur. Data dianalisis menggunakan *one way ANOVA* dan perbedaan yang nyata dilanjutkan dengan *Duncans New Multiple Ranges Test* (DMRT). Hasil uji fisik secara berturut-turut dari penambahan tepung kacang hijau, tepung kacang kedelai, dan tepung kacang merah antara lain, hasil uji pH berturut-turut yaitu  $5,96 \pm 0,03$ ;  $6,09 \pm 0,05$ ; dan  $6,07 \pm 0,03$ . Hasil daya ikat air berturut-turut yaitu  $51,51 \pm 4,38$ ;  $47,18 \pm 2,60$ ; dan  $53,17 \pm 1,83$  dengan satuan %. Hasil keempukan berturut-turut yaitu  $28,31 \pm 0,78$ ;  $30,65 \pm 1,38$ ; dan  $23,20 \pm 1,28$  dengan satuan mm/50g. Hasil analisis statistik pengujian pH menunjukkan bahwa penambahan bahan pengikat tepung kacang hijau, tepung kacang kedelai, dan tepung kacang merah sebagai bahan pengikat berpengaruh sangat nyata ( $P < 0,01$ ) terhadap nilai pH dan nilai keempukan, serta berpengaruh secara nyata ( $P < 0,05$ ) terhadap nilai daya ikat air. Secara mikrostruktur bakso daging sapi dengan penambahan bahan pengikat tepung kacang kedelai memiliki kualitas mikrostruktur yang terbaik karena struktur jaringan bakso yang lebih teratur, tipis, panjang, kompak, dan merata dibandingkan dengan penambahan bahan pengikat tepung kacang hijau dan tepung kacang merah.

Kata kunci: Bakso sapi, Tepung kacang merah, Tepung kacang hijau, Tepung kacang kedelai, Sifat fisik, Mikrostruktur.

## EFFECT LEGUM FLOUR TYPES AS BINDER ON THE PHYSICAL AND MICROSTRUCTURE QUALITY OF MEATBALL

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### ABSTRACT

This research was aimed to determine the effect of adding different grain flours (legumes) as a binding agent on the physical quality and microstructure of beef meatballs. The materials used in this study consisted of beef, tapioca flour, table salt, garlic, pepper, coriander, sodium tripolyphosphat (STPP), cooking oil, mung bean flour, soybean flour, kidney bean flour, and water. The treatments in this study were: addition of mung bean flour, addition of soybean flour, addition of kidney bean flour. The parameters observed in this study were physical quality including meatball pH, water holding capacity, meatball tenderness and microstructure quality. Data analysis uses one way ANOVA then continue with Duncan's Multiple Range Test (DMRT). The results of the physical tests in a row from the addition of mung bean flour, soybean flour, and kidney bean flour were among others, the results of the pH test were  $5.96 \pm 0.03$ ;  $6.09 \pm 0.05$ ; and  $6.07 \pm 0.03$ . The results of the water holding capacity were  $51.51 \pm 4.38$ ;  $47.18 \pm 2.60$ ; and  $53.17 \pm 1.83$  with % units. The results of tenderness were  $28.31 \pm 0.78$  respectively;  $30.65 \pm 1.38$ ; and  $23.20 \pm 1.28$  in mm/50g units. The results of the statistical analysis of pH testing showed that the addition of *binders* for mung bean flour, soybean flour, and kidney bean flour as a binding agent had a very significant effect ( $P < 0,01$ ) on the pH value and the tenderness value, and had a significant effect ( $P < 0,05$ ) to the water holding capacity. Beef meatballs with the addition of red bean flour have the best physical quality than meatballs with the addition of mung bean flour and soybean flour. Microstructure of beef meatballs with the addition of *binder* for soybean flour has the best microstructure quality because the network structure of the meatballs is more regular, thin, long, compact, and evenly distributed compared to the addition of *binders* for mung bean flour and kidney bean flour.

Keywords: Meatball, Kidney bean flour, Mung bean flour, Soybean flour, Physical properties, Microstructure.