

PENGARUH SUBSTITUSI TEPUNG TAPIOKA DENGAN TEPUNG UMBI GARUT (*Maranta arundinacea*) TERHADAP KUALITAS FISIK DAN MIKROSTRUKTUR BAKSO AYAM

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INTISARI

Bakso sangat terkenal dan banyak digemari oleh berbagai kalangan masyarakat. *Filler* bakso yang sering digunakan yaitu tepung tapioka dengan indeks glikemik tinggi, maka diperlukan pengganti *filler* bakso yang lebih baik seperti tepung umbi garut. Penelitian ini bertujuan untuk mengetahui pengaruh substitusi tepung tapioka dengan tepung umbi garut (*Maranta arundinacea*) terhadap kualitas fisik dan mikrostruktur bakso ayam. Bahan yang digunakan dalam penelitian yaitu daging ayam, air es, tepung tapioka, tepung umbi garut, bawang putih, garam, merica, dan *sodium tripolyphosphate* (STPP). Imbangan tepung tapioka dengan tepung umbi garut adalah 100:0, 75:25, 50:50, 25:75, 0:100 dengan lima kali pengulangan pada setiap perlakuan. Parameter yang diamati yaitu kualitas fisik (pH, daya ikat air (DIA), keempukan), dan mikrostruktur bakso ayam. Data yang diperoleh dari uji kualitas fisik dianalisis menggunakan analisa Rancangan Acak Lengkap (RAL) Pola Searah (*One Way Anova*) dengan uji lanjut *Duncan's Multiple Range Test* (DMRT) pada kualitas fisik. Preparat mikrostruktur bakso ayam dibuat dengan metode pewarnaan hemaktosilin-eosin (HE), lalu diamati menggunakan mikroskop dengan perbesaran 400 kali, kemudian dianalisa secara deskriptif. Hasil penelitian menunjukkan bahwa substitusi tepung tapioka dengan tepung umbi garut memberi pengaruh nyata ($P < 0,05$) terhadap DIA bakso ayam, tetapi tidak memberi pengaruh nyata ($P > 0,05$) terhadap pH dan keempukan. Substitusi tepung tapioka dengan tepung umbi garut meningkatkan DIA bakso ayam. Mikrostruktur bakso ayam dengan substitusi tepung umbi garut memberikan struktur lebih baik yaitu partikel daging dan non daging yang homogen, kompak, serta merata dibandingkan dengan bakso ayam tanpa substitusi tepung umbi garut. Kesimpulan yang diperoleh pada penelitian yaitu substitusi tepung tapioka dengan tepung umbi garut pada bakso ayam 0:100 memiliki kualitas fisik dan mikrostruktur terbaik.

Kata Kunci: Bakso ayam, Tepung umbi garut, *Maranta arundinacea*, Kualitas fisik, Mikrostruktur.

THE EFFECT OF ARROWROOT FLOUR (*Maranta arundinacea*) AS A SUBSTITUTIONS OF TAPIOCA FLOUR ON PHYSICAL AND MICROSTRUCTURAL QUALITIES OF CHICKEN MEATBALL

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ABSTRACT

Meatballs are very popular and much liked by various groups of people. The meatball filler that is often used is tapioca flour with a high glycemic index, so a better meatball filler substitute such as arrowroot flour is needed. This research aimed to determine the effect of the substitution of tapioca flour with arrowroot flour (*Maranta arundinacea*) on the physical and microstructural qualities of chicken meatballs. The materials used in the study included chicken meat, cold water, tapioca flour, arrowroot flour, garlic, salt, pepper, and *sodium tripolyphosphate* (STPP). The balance of tapioca flour to arrowroot flour was 100:0, 75:25, 50:50, 25:75, 0:100 with five replications for each treatment. The parameter observed were physical quality including pH, water holding capacity (WHC), and tenderness, as well as the microstructure of chicken meatballs. The data obtained from the physical quality test were analyzed using a Completely Randomized Design (CRD) in One Way Anova continued with Duncan's Multiple Range Test (DMRT) on physical quality. Microstructural preparations of chicken meatballs were made using the hematoxylin-eosin (HE) staining method, then observed using a microscope with a magnification of 400 times which would then be analyzed descriptively. The results showed that the substitution of tapioca flour with arrowroot flour had a significant effect ($P < 0,05$) on the WHC of chicken meatballs, but had no significant effect ($P > 0,05$) on pH and tenderness of chicken meatballs. Substitution of tapioca flour with arrowroot flour increases the WHC of chicken meatballs. The microstructure of chicken meatballs with arrowroot flour substitution provided a better structure, namely meat and non-meat particles that were homogeneous, compact, and evenly distributed compared to chicken meatballs without arrowroot flour substitution. The conclusion obtained in this research is that the substitution of tapioca flour with arrowroot flour in chicken meatballs 0:100 has the best physical and microstructural qualities.

Keywords: Chicken meatball, Arrowroot flour, *Maranta arundinacea*, Physical quality, Microstructure.