

KARAKTERISASI FISIKOKIMIA PRODUK MAKARONI HASIL SUBSTITUSI TEPUNG SAGU TERHADAP TEPUNG TERIGU DENGAN PENAMBAHAN PROTEIN DARI TEPUNG TEMPE

Husnal Hayati, Anwar Kasim, Neswati

ABSTRAK

Tujuan penelitian ini adalah untuk mengetahui pengaruh substitusi tepung sagu terhadap tepung terigu dengan penambahan protein dari tepung tempe terhadap karakteristik fisikokimia produk makaroni yang dihasilkan dibandingkan dengan produk makaroni komersial berbasis gandum dan membandingkannya dengan Standar Nasional Indonesia. Penelitian ini menggunakan Rancangan Acak Lengkap (RAL) dengan 5 perlakuan (perbedaan persentase substitusi tepung sagu 10%, 15%, 20%, 25% and 30% terhadap tepung terigu) dan 3 ulangan. Data dianalisa secara statistika menggunakan *Analysis of Variance* (ANOVA) dan dilanjutkan dengan *Duncan's New Multiple Range Test* (DNMRT) pada taraf nyata 5%. Pengamatan terhadap makaroni yaitu pengamatan sifat fisik (warna, tekstur dan sifat fisik selama pemasakan), uji organoleptik, analisis kimia makaroni dan uji mikrobiologi. Penelitian ini menunjukkan bahwa peningkatan persentase substitusi tepung sagu dengan penambahan protein dari tepung tempe memberikan pengaruh berbeda tidak nyata terhadap kadar air, kadar abu, kadar protein, kadar lemak, tingkat kekerasan, daya serap air dan KPAP. Namun, memberikan pengaruh berbeda nyata terhadap warna, derajat pengembangan dan koefisien peningkatan volume. Makaroni pada perlakuan C (substitusi tepung sagu 20%) merupakan makaroni yang dapat menyerupai produk makaroni komersial berdasarkan hasil uji organoleptik. Makaroni pada perlakuan C ini telah memenuhi SNI 01-3777-1995 dari kriteria kadar air (8,31%), kadar protein (15,11%) dan angka lempeng total ($8,7 \times 10^5$ koloni/gram), tetapi belum memenuhi syarat dari kriteria kadar abu (1,29%) dan kadar lemaknya (3,80%).

Kata kunci – makaroni, substitusi tepung sagu, tepung terigu, penambahan protein, tepung tempe

Physicochemical Characterization of Macaroni Products from Sago Flour's Substitution Towards Wheat Flour with Protein Fortification from Tempeh Flour

Husnal Hayati, Anwar Kasim, Neswati

ABSTRACT

This research was aimed to learn the effect of sago flour's substitution towards wheat flour with protein fortification from tempeh flour towards physicochemical characteristic of macaroni products were produced compared with commercial's macaroni product based on wheat and compared them with Indonesian National Standard. This research used Completely Randomized Designed (CRD) consist of 5 treatment (difference in percentage of sago flour's substitution 10%, 15%, 20%, 25% and 30% towards wheat flour) and 3 replications. Data were analyzed statistically with Analysis of Variance (ANOVA) and were continued with Duncan's New Multiple Range Test (DNMRT) at 5% significance level. Observations on macaroni were observations of physical properties (color, texture and physical properties during cooking), sensory analysis, chemical analysis of macaroni and microbiological test. This research determined that an increase in the percentage of sago flour's substitution with protein fortification from tempeh flour not significantly affected towards moisture content, ash content, protein content, lipid content, hardness, water absorption and cooking loss. However, significantly affected towards color, swelling index and volume increase coefficient. Macaroni on treatment C (sago flour's substitution 20%) was the macaroni that can resembled a commercial's macaroni product based on sensory analysis. Macaroni in treatment C has qualified the SNI 01-3777-1995 from the criteria moisture content (8,31%), protein content (15,11%) and total plate count ($8,7 \times 10^5$ colonies / gram), but did not qualified the requirements from criteria ash content (1,29%) and lipid content (3,80%).

Keywords – macaroni, sago flour's substitution, wheat flour, protein fortification, tempeh flour

