

**PENGARUH SUBSTITUSI TEPUNG KOMPOSIT UWI UNGU-ISOLAT
PROTEIN KEDELAI DAN PENAMBAHAN GLUTEN TERHADAP SIFAT FISIK,
KIMIA DAN TINGKAT KESUKAAN MAKARONI**

INTISARI

Tujuan dari penelitian ini adalah untuk mengetahui pengaruh substitusi tepung uwi ungu (*Discorea alata* L) dan isolat protein kedelai serta gluten terhadap sifat fisik, kimia dan tingkat kesukaan makaroni. Potensi uwi ungu sebagai sumber antioksidan alami belum dimanfaatkan secara optimal oleh masyarakat. Uwi dapat menjadi bahan diversifikasi pangan dan sumber pangan fungsional. Uwi sebagai sumber karbohidrat sekaligus tinggi protein dan rendah kadar gula. Penambahan gluten digunakan untuk mendapatkan tekstur adonan yang kenyal dan dapat mengembang. Kandungan gluten dapat mencapai 80% dari total protein dalam tepung, terdiri dari protein gliadin dan glutenin.

Pada penelitian ini dibuat makaroni berbahan baku tepung terigu yang disubstitusi dengan tepung uwi ungu dan isolat protein kedelai (90:10:2g, 80:20:4g, 70:30:6g) serta konsentrasi gluten, adapun variasi konsentrasi gluten adalah 0,50g, 0,75g dan 1g. Analisis yang dilakukan yaitu uji fisik (tekstur, warna), kimia (kadar air, aktivitas antioksidan, kadar abu, kadar protein, total fenol, antosianin) dan uji kesukaan. Data hasil uji dilakukan uji statistic dengan metode *Univariate Analysis of Variance* dan *One Way Anova* dengan tingkat kepercayaan 95%.

Perbandingan variasi gluten dengan tepung uwi ungu menghasilkan produk makaroni yang disukai panelis dan berpengaruh nyata terhadap sifat fisik yaitu warna, tekstur, sifat kimia, kadar air, kadar abu, kadar protein, aktivitas antioksidan, total fenol, antosianin dan uji kesukaan makaroni. Penilaian dari uji kesukaan dan aktivitas antioksidan dapat disimpulkan bahwa secara keseluruhan nilai terbaik didapatkan pada perlakuan tepung terigu: tepung uwi ungu: isolat protein kedelai 70g:30g:6g gluten 0,50g yaitu dengan tekstur 1452,0 mJ, kadar air 5,85% bb, aktivitas antioksidan 43,32% RSA, kadar protein 16,95% bb, total fenol 39,02mg EAG/100g bk, dan kadar antosianin 27,03 mg/100g bk.

Kata kunci: Makaroni, Uwi ungu, Isolat Protein Kedelai, Gluten, Aktivitas antioksidan

EFFECT OF PURPLE YAM – SOY PROTEIN ISOLATE COMPOSIT FLOUR SUBSTITUTION AND GLUTEN ADDITION ON THE PHYSICAL, CHEMICAL PROPERTIES AND PREFERENS LEVEL OF MACARONI

ABSTRAC

The purpose of this study was to determine the effect of substitution of purple yam flour (*Discorea alata* L) and soy protein isolate and gluten on the physical, chemical properties and level of preference for macaroni. The potential of purple yam as a source of natural antioxidants has not been utilized optimally by the public. Uwi can be used as a food diversification material and a functional food source. Uwi as a source of carbohydrates as well as high protein and low sugar content. The addition of gluten is used to get a dough texture that is chewy and expandable. The gluten content can reach 80% of the total protein in flour, consisting of gliadin and glutenin proteins.

In this research, macaroni was made from wheat flour which was substituted with purple yam flour and soy protein isolate (90:10:2g, 80:20:4g, 70:30:6g) and gluten concentration, while the variation in gluten concentration was 0.50g, 0.75g and 1g. The analyzes carried out were physical tests (texture, color), chemical (moisture content, antioxidant activity, ash content, protein content, total phenol, anthocyanin) and preference test. The test data were subjected to statistical tests using the Univariate Analysis of Variance and One Way Anova methods with a 95% confidence level.

Comparison of gluten variations with purple yam flour produced macaroni products that were preferred by panelists and had a significant effect on physical properties, namely color, texture, chemical properties, moisture content, ash content, protein content, antioxidant activity, total phenol, anthocyanin and macaroni preference test. Based on the preference test and antioxidant activity it can be concluded that overall the best value was obtained in the treatment of wheat flour: purple yam flour: soy protein isolate 70g:30g:6g gluten 0.50g, namely with a texture texture of 1452.0 mJ, water content of 5.85 % body weight, antioxidant activity 43.32% RSA, protein content 16.95% body weight, total phenol 39.02 mg EAG/100g bk, and anthocyanin content 27.03 mg/100g bk.

Keywords: Macaroni, Purple Uwi, Soy Protein Isolate, Gluten, Antioxidant activity