

ABSTRAK

SUBSTITUSI PASTA UBI JALAR UNGU PADA PEMBUATAN ROTI KUKUS .

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Tingginya tingkat konsumsi gandum di Indonesia memicu ketergantungan impor pangan yang terus meningkat setiap tahunnya. Upaya diversifikasi pangan menggunakan komoditas lokal seperti ubi jalar ungu dalam bentuk pasta esensial dilakukan untuk menekan penggunaan tepung terigu serta meningkatkan nilai fungsional produk melalui kandungan antioksidan antosianin. Penelitian ini bertujuan untuk mengetahui pengaruh substitusi pasta ubi jalar ungu terhadap karakteristik fisik (daya kembang), sifat kimia (kadar air), dan mutu organoleptik roti kukus rendah gluten, serta menentukan formulasi substitusi yang paling optimal. Metode penelitian menggunakan eksperimen laboratorium dengan Rancangan Acak Lengkap (RAL) untuk pengujian kadar air dan daya kembang, serta Rancangan Acak Kelompok (RAK) untuk uji sensoris organoleptik. Penelitian terdiri atas 5 perlakuan substitusi pasta ubi jalar ungu dan tepung terigu, yaitu: P0 (0%:100% sebagai kontrol), P1 (10%:90%), P2 (20%:80%), P3 (30%:70%), dan P4 (40%:60%), dengan masing-masing perlakuan diulang sebanyak 3 kali.

Hasil analisis ragam menunjukkan bahwa substitusi pasta ubi jalar ungu memberikan pengaruh yang berbeda sangat nyata ($P \leq 0,05$) terhadap kadar air, daya kembang, serta tingkat kesukaan panelis terhadap warna, aroma, rasa, dan tekstur roti kukus. Peningkatan konsentrasi pasta secara linier meningkatkan kadar air produk dari 30,34% (P0) hingga mencapai 43,44% (P4) akibat sifat hidrofilik serat pangan umbi. Perlakuan P0 hingga P3 masih memenuhi Standar Nasional Indonesia (SNI 01-3840-1995) dengan kadar air di bawah 40%, sedangkan P4 melebihi standar mutu. Formulasi terbaik yang paling disukai panelis adalah Perlakuan P2 (substitusi pasta ubi jalar ungu 20%) dengan skor organoleptik tertinggi pada atribut warna (4,62), aroma (4,68), rasa (4,82), tekstur (4,77), daya kembang maksimal (2,63), serta kadar air ideal sebesar 37,45%. Substitusi di atas 20% (P3 dan P4) secara drastis menurunkan mutu sensoris akibat pelemahan jaringan gluten yang membuat roti rapuh, volume mengembang rendah, warna ungu gelap kusam, serta munculnya aroma langu umbi dan rasa pahit akibat degradasi antosianin pasca-pengukusan.

Kata Kunci: Antosianin, Diversifikasi Pangan, Kadar Air, Pasta Ubi Jalar Ungu, Roti Kukus.

ABSTRACT

PURPLE SWEET POTATO PASTE SUBSTITUTION IN STEAMED BREAD MAKING.

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The high level of wheat consumption in Indonesia has triggered a dependence on food imports that continues to increase annually. Food diversification efforts using local commodities such as purple sweet potato in the form of essential pasta are carried out to reduce the use of wheat flour and increase the functional value of products through the content of anthocyanin antioxidants. This study aims to determine the effect of purple sweet potato paste substitution on the physical characteristics (rising power), chemical properties (moisture content), and organoleptic quality of low-gluten steamed bread, as well as to determine the most optimal substitution formulation. The research method used a laboratory experiment with a Completely Randomized Design (CRD) for moisture content and rising power testing, and a Randomized Block Design (RBD) for organoleptic sensory testing. The study consisted of five substitution treatments for purple sweet potato paste and wheat flour: P0 (0%:100% as control), P1 (10%:90%), P2 (20%:80%), P3 (30%:70%), and P4 (40%:60%), with each treatment replicated three times.

Analysis of variance results showed that the purple sweet potato paste substitution had a highly significant effect ($P < 0.05$) on the moisture content, rise rate, and panelists' preference for the color, aroma, taste, and texture of the steamed bread. Increasing the paste concentration linearly increased the product's moisture content from 30.34% (P0) to 43.44% (P4) due to the hydrophilic nature of the tuber's dietary fiber. Treatments P0 to P3 still met the Indonesian National Standard (SNI 01-3840-1995) with a moisture content below 40%, while P4 exceeded the quality standard. The best formulation most preferred by panelists was Treatment P2 (20% purple sweet potato paste substitution), with the highest organoleptic scores for color (4.62), aroma (4.68), taste (4.82), texture (4.77), maximum rise (2.63), and ideal moisture content of 37.45%. Substitutions above 20% (P3 and P4) drastically reduced sensory quality due to weakening of the gluten network, resulting in brittle bread, low rise volume, a dull dark purple color, and the appearance of a rancid tuber aroma and bitter taste due to post-steaming anthocyanin degradation.

Keywords: Anthocyanin, Food Diversification, Water Content, Purple Sweet Potato Pasta, Steamed Bread