

RINGKASAN

Produksi beras yang tinggi di Indonesia menghasilkan bekatul dalam jumlah yang besar. Bekatul merupakan hasil samping proses penggilingan padi yang seringkali dianggap limbah dan hanya dijadikan sebagai pakan ternak, padahal kandungan gizinya berpotensi sebagai bahan pangan yang dapat meningkatkan sifat fungsional. Pemanfaatan bekatul menghadapi tantangan karena tingginya kandungan serat yang dapat menurunkan kualitas tekstur produk kukis menjadi keras dan kurang disukai oleh konsumen. Untuk mengatasi hal tersebut, penelitian ini menggunakan bahan pengembang berupa SAPP (*sodium acid pyrophosphate*) dan *baking powder* untuk memperbaiki tekstur kukis berbasis bekatul agar lebih diterima secara sensoris. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh dan menentukan kombinasi perlakuan terbaik dari penggunaan tepung bekatul serta bahan pengembang *baking powder* dan SAPP terhadap karakteristik fisik, kimia dan kesukaan kukis.

Penelitian dilakukan menggunakan Rancangan Acak Lengkap (RAL) faktorial dengan 2 faktor dan 3 kali ulangan. Faktor pertama adalah proporsi tepung bekatul (T) yang terdiri dari 5 taraf, yaitu 0% tepung bekatul atau 100% tepung terigu (T0), 100% (T1), 60% (T2), 50% (T3), dan 40% (T4). Faktor kedua adalah jenis bahan pengembang (B), yaitu *baking powder* (B1) dan SAPP (B2). Pada penelitian ini dilakukan pengujian fisik, sensoris, dan kimia. Pengujian fisik yang diamati meliputi *baking loss*, *spread ratio*, dan analisis warna L^* , a^* , dan b^* , pengujian sensoris meliputi warna, aroma, rasa, tekstur, dan kesukaan keseluruhan, serta pengujian kimia meliputi kadar air, kadar abu, kadar lemak, kadar protein, dan kadar karbohidrat *by difference* yang dilakukan pada dua perlakuan terbaik berdasarkan sifat sensoris. Sampel perlakuan terbaik kemudian dibandingkan secara sensoris dengan kukis komersial yang terdapat di pasaran.

Hasil penelitian menunjukkan bahwa proporsi bekatul yang semakin tinggi akan meningkatkan nilai *redness* (a^*), namun menurunkan nilai *baking loss*, *spread ratio*, nilai *lightness* (L^*), nilai *yellowness* (b^*), serta menurunkan rata-rata skor sensoris warna, aroma, rasa, tekstur, dan kesukaan keseluruhan panelis. Penggunaan bahan pengembang *baking powder* dan SAPP berpengaruh terhadap nilai *lightness* (L^*) kukis yang menurun seiring peningkatan proporsi tepung bekatul. Perlakuan terbaik berdasarkan sifat sensoris dihasilkan oleh perlakuan proporsi 40% tepung bekatul dan *baking powder* dengan nilai kadar air 4,08%, kadar abu 1,90%, kadar lemak 10,79%, kadar protein 3,85%, dan kadar karbohidrat 79,37% *by difference*, serta perlakuan proporsi 50% tepung bekatul dan SAPP memiliki nilai kadar air 3,73%, kadar abu 2,65%, kadar lemak 16,67%, kadar protein 6,65%, kadar karbohidrat 70,30% *by difference*.

SUMMARY

Indonesia as a major rice-producing country, produces rice bran in high quantities. Rice bran is a by-product of the rice milling process that is often regarded as waste and primarily used as animal feed, despite its high nutritional value and potential as a food ingredient that can enhancing functional properties. However, its application in food product presents challenges, particularly due to its high fiber content, which tends to negatively affect the texture of cookies texture, resulting in harder products that are less preferred by consumers. To overcome this limitation, this study applied leavening agents such as sodium acid pyrophosphate (SAPP) and baking powder to improve the texture and sensory acceptability of cookies made with rice bran flour. The objective was to evaluate the effects and determine the optimal combination of rice bran flour and leavening agents on the physicochemical and sensory characteristics of cookies.

This study was designed using a factorial Completely Randomized Design (CRD) consisting of two factors with three replications. The first factor was the proportion of rice bran flour (T), with five levels: 0% rice bran flour or 100% wheat flour (T0), 100% rice bran flour (T1), 60% (T2), 50% (T3), and 40% (T4). The second factor was the type of leavening agent (B), wich included baking powder (B1) and SAPP (B2). The parameters observed included physical (baking loss, spread ratio, color), sensory (color, aroma, taste, texture, and overall acceptability), and chemical characteristics. Chemical analysis was conducted on the two best-performing formulations, selected based on sensory scores. Analyses included moisture, ash, fat, protein, and carbohydrate content (by difference). The selected formulations were compared with commercial cookies through sensory evaluation.

The results showed that increasing the proportion of rice bran flour increased the redness value (a^), but decreased baking loss, spread ratio, lightness (L^*), yellowness (b^*), and the average sensory scores for color, aroma, taste, texture, and overall acceptability. The type of leavening agent (baking powder or SAPP) significantly affected the lightness (L^*) of the cookies, with values decreasing as rice bran proportion increased. Based on the sensory evaluation, the best treatment was obtained from the formulation containing 40% rice bran flour with baking powder (moisture content 4.08%, ash 1.91%, fat 10.79%, protein of 3.85%, and carbohydrate (by difference) 79.37%), and from the formulation containing 50% rice bran flour with SAPP, which had a moisture 3.74%, ash 2.65%, fat 16.67%, protein 6.65%, and carbohydrate (by difference) 70.29%.*