

## ABSTRAK

Sherly Laurensia (01034190060)

### **EKSPLORASI POTENSI KACANG-KACANGAN GENUS *PHASEOLUS* UNTUK MENINGKATKAN KADAR PROTEIN SERTA KARAKTERISTIK FISIK DAN SENSORI *LIQUID BREAKFAST* BERBASIS BERAS**

Skripsi, Fakultas Sains dan Teknologi (2023)

(xvi + 70 halaman; 25 gambar; 15 tabel; 15 lampiran)

*Liquid breakfast* adalah jenis produk yang memiliki viskositas cukup kental dan bisa dikonsumsi sebagai pengganti sarapan. Beras merupakan salah satu komoditas yang umum dikonsumsi sebagai sarapan oleh masyarakat di Indonesia. Namun, beras tidak mengandung protein yang tinggi. Penelitian ini bertujuan untuk mempelajari pengaruh jenis kacang dari genus *Phaseolus* terhadap karakteristik fisikokimia, sensori, dan aktivitas antioksidan *liquid breakfast* berbasis beras. Tiga jenis kacang (kacang merah, kacang hitam, dan kacang pinto) dan tiga rasio beras:kacang (100:0, 75:25, 50:50) digunakan sebagai variabel dalam penelitian ini. Karakteristik *liquid breakfast* berbasis beras dievaluasi melalui beberapa parameter yaitu kadar protein, viskositas, aktivitas antioksidan, warna (*lightness* dan  $^{\circ}Hue$ ), indeks pemisahan, *crude fiber*, dan sensori (skoring dan hedonik). Data menunjukkan bahwa jenis kacang dan rasio beras:kacang secara signifikan mempengaruhi kadar protein, aktivitas antioksidan, warna, dan *crude fiber liquid breakfast* berbasis beras, juga nilai skoring warna, aroma, rasa, dan viskositas, serta hedonik rasa, viskositas, *mouthfeel*, dan penerimaan keseluruhan. Nilai hedonik warna dan aroma hanya dipengaruhi oleh jenis kacang. Nilai skoring *mouthfeel* hanya dipengaruhi oleh rasio beras:kacang. Kadar protein dan *lightness* mengalami peningkatan pada rasio 50:50. *Crude fiber* mengalami peningkatan seiring dengan kenaikan rasio beras:kacang. Formulasi terbaik pada penelitian ini adalah *liquid breakfast* yang dibuat dari beras dan kacang hitam dengan rasio 50:50 yang mengandung kadar protein sebesar  $47.72 \pm 3.63\%$  (*db*), *crude fiber* sebesar  $17.81 \pm 0.46\%$  (*db*), dengan viskositas sebesar  $1574.00 \pm 2.83$  cP, aktivitas antioksidan sebesar  $9.78 \pm 6.27$  mmol  $Fe^{2+}/g$  (*db*), *lightness* sebesar  $67.35 \pm 0.12$ , memiliki warna kuning ( $^{\circ}Hue$   $103.36 \pm 0.13$ ), dengan indeks pemisahan sebesar  $0.98 \pm 0.01$ . Hasil uji skoring menunjukkan bahwa *liquid breakfast* dengan formulasi terbaik tersebut memiliki warna “coklat/hijau”, “beraroma kacang”, “berasa kacang”, “sedikit kental”, “sedikit *gritty*”, dengan hasil hedonik yang menunjukkan tingkat kesukaan pada semua atribut yang masih dalam kategori “netral” hingga “sedikit suka”.

Kata Kunci : Beras, kadar protein, *liquid breakfast*, *Phaseolus vulgaris*

Referensi : 65 (1993-2022)

## ABSTRACT

Sherly Laurensia (01034190060)

### **EXPLORING THE POTENCY OF LEGUMES GENUS *PHASEOLUS* TO IMPROVE THE PROTEIN CONTENT AND CHARACTERISTIC SENSORY OF RICE-BASED LIQUID BREAKFAST**

Thesis, Faculty of Science and Technology (2023)

xvi + 70 pages; 25 figures; 15 tables; 15 appendices)

Liquid breakfast is a type of product that has a fairly thick viscosity and can be consumed as a substitute for breakfast. Rice is one of the commodities commonly consumed as breakfast by people in Indonesia. However, rice does not contain high protein. This study was aimed to investigate the effect of types of beans from the genus *Phaseolus* on the physicochemical characteristics, sensory, and antioxidant activity of rice-based liquid breakfast. Three types of beans (red beans, black beans, and pinto beans) and three rice:bean ratios (100:0, 75:25, 50:50) were used as variables in this study. The characteristics of rice-based liquid breakfast were evaluated through several analytical parameters, namely protein content, viscosity, antioxidant activity, colour (lightness and °Hue), separation index, crude fiber, and sensory (scoring and hedonic). The data showed that the type of beans and the rice:bean ratio affected the protein content, antioxidant activity, colour, and crude fiber of the rice-based liquid breakfast, as well as the scoring value of colour, aroma, taste, and viscosity, as well as hedonic value of taste, viscosity, mouthfeel, and overall acceptance. The hedonic value of colour and aroma was only affected by the type of bean. The mouthfeel scoring value was only affected by the rice:bean ratio. The protein content and the lightness increased at a ratio of 50:50. The crude fiber increased along with the increase of the rice:bean ratio. The best formulation in this study was the liquid breakfast made from black beans and rice with the ratio of 50:50 which had the protein content of  $47.72 \pm 3.63\%$  (db), crude fiber of  $17.81 \pm 0.46\%$  (db), with the viscosity of  $1574.00 \pm 2.83$  cP, antioxidant activity of  $9.78 \pm 6.27$  mmol Fe<sup>2+</sup>/g (db), lightness of  $67.35 \pm 0.12$ . Its colour was yellow (°Hue  $103.36 \pm 0.13$ ), and the separation index was  $0.98 \pm 0.01$ . The results of the scoring test showed that the liquid breakfast with the best formulation had "brown or green" colour, "aroma of nuts", "taste of nuts", "slightly thick", "slightly gritty", with the hedonic results showing the preference in all attributes still in the category of "neutral" up to "slightly like".

Keywords : Rice, protein content, liquid breakfast, *Phaseolus vulgaris*

Reference : 65 (1993-2022)