ANALISIS PENAMBAHAN BUBUK GELATIN CEKER AYAM TERHADAP KARAKTERISTIK KIMIA, FISIK, DAN SENSORI PADA PRODUK SOYGURT

ANALYSIS OF THE ADDITION OF CHICKEN FOOT GELATIN POWDER ON CHEMICAL, PHYSICAL AND SENSORY CHARACTERISTICS OF SOYGURT PRODUCT

TUGAS AKHIR S1

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RINGKASAN

Kebutuhan gelatin di Indonesia masih bergantung pada impor dengan angka impor Januari-September 2023 mencapai 1,79 juta kg. Industri pemotongan ayam menghasilkan ceker ayam dalam jumlah yang banyak namun pemanfaatannya belum optimal padahal kandungan proteinnya tinggi sehingga berpotensi diolah menjadi gelatin. Soygurt mengandung lemak yang rendah, nilai gizi yang tinggi serta dapat dikonsumsi oleh orang yang mengalami *lactose intolerance*. Soygurt memiliki tekstur yang lebih encer dibandingkan yoghurt susu hewani karena total padatannya lebih rendah. Untuk memperbaiki konsistensi dan viskositasnya perlu ditambahkan bahan pengental seperti gelatin. Keberadaan gelatin dalam soygurt selain dapat memperbaiki sifat fisik dan kimianya juga dapat meningkatkan nilai gizi karena kandungan proteinnya yang tinggi. Beberapa penelitian telah dilakukan menggunakan gelatin komersial untuk pembuatan soygurt tetapi belum ada penelitian yang menggunakan gelatin dari ceker ayam untuk ditambahkan dalam soygurt. Oleh karena itu, penelitian ini dilakukan dengan tujuan untuk mengetahui pengaruh penambahan gelatin ceker ayam terhadap karakteristik kimia, fisik, dan sensori soygurt serta hubungan antar setiap parameter. Selain itu untuk merumuskan konsentrasi gelatin yang menghasilkan soygurt dengan karakteristik kimia dan fisik yang paling diminati panelis. Penelitian ini merupakan penelitian eksperimental di laboratorium dengan variabel bebasnya adalah konsentrasi gelatin ceker ayam yang terdiri lima tingkatan yaitu 0%, 0,3%, 0,5%, 0,7%, dan 0,9%. Pada setiap tingkatan dilakukan lima kali pengulangan sehingga terdapat 25 total unit penelitian. Variabel kontrolnya adalah jumlah susu kedelai dan gula. Parameter yang diuji adalah parameter kimia, fisik, dan sensori dengan total 12 indikator. Pengujian karakteristik kimia meliputi kadar protein dengan metode Lowry, kadar lemak dengan metode *Soxhlet*, kadar air dengan metode thermogravimetri, kadar abu dengan metode tanur, dan pH dengan pH meter. Pengujian karakteristik fisik meliputi viskositas dengan alat *viscometer* dan warna dengan alat *chromameter*. Pengujian sensori dengan indikator aroma, rasa, tekstur, keseluruhan, dan minat beli dilakukan oleh 30 panelis tak terlatih. Data parametrik berupa analisis kimia dan fisik diuji dengan uji normalitas dan homogenitas, dilanjutkan dengan uji *Post Hoc* (uji beda), dan uji korelasi *Pearson*. Data non parametrik yaitu sensori dianalisis menggunakan uji Kruskal Wallis dan dilanjutkan dengan uji Mann Whitney apabila terdapat perbedaan nyata. Uji korelasi parameter kimia, fisik, dan sensori dihubungkan secara grafis. Hasil penelitian menunjukkan bahwa penambahan konsentrasi gelatin dalam soygurt memberi pengaruh terhadap peningkatan kadar protein, kadar abu, viskositas, nilai a*, dan nilai b*, serta penurunan terhadap kadar lemak, kadar air, pH, dan nilai L. Kadar protein berkisar 3,35% hingga 5,02%, kadar lemak 1,52 %hingga 3,05%, kadar air 78,72% hingga 82,05%, kadar abu 0,49% hingga 0,75%, pH 4,42 hingga 4,44, viskositas 519,9 cP hingga 925,4 cP, nilai L 83,33 hingga 84,43,nilai a* 3,42 hingga 3,63, nilai b* 14,21 hingga 14,99, nilai c* 14,4 hingga 15,42, dan nilai h*

76,37 hingga 76,94. Hasil penelitian juga menunjukkan bahwan hubungan minat panelis terhadap produk soygurt berbeda nyata ($p<0,05$) pada analisis sensori indikator keseluruhan. Tapi pada uji sensori penilaian keseluruhan tidak berbeda nyata antar perlakuan. Semakin tinggi penambahan konsentrasi gelatin pada soygurt, viskositas soygurt semakin meningkat karena peningkatan kadar protein dan penurunan kadar air, pH, dan kecerahan. Penambahan konsentrasi gelatin meningkatkan kadar protein, viskositas, dan kadar abu serta menurunkan kadar lemak, kadar air, pH dan kecerahan namun tidak mempengaruhi penerimaan panelis terhadap produk soygurt.

SUMMARY

The need for gelatin in Indonesia still depends on imports with import figures from January to September 2023 reaching 1.79 million kg. The chicken slaughtering industry produces chicken feet in large quantities but their utilization is not optimal even though the protein content is high so it has the potential to be processed into gelatin. Soygurt contains low fat, high nutritional value and can be consumed by people who experience lactose intolerance. Soygurt has a thinner texture than animal milk yogurt because the total solids are lower. To improve the consistency and viscosity, thickeners such as gelatin need to be added. The presence of gelatin in soygurt can not only improve its physical and chemical properties but also increase its nutritional value because of its high protein content. Several studies have been carried out using commercial gelatin to make soygurt, but there has been no research using gelatin from chicken feet to be added to soygurt. Therefore, this research was carried out with the aim of determining the effect of adding chicken claw gelatin on the chemical, physical and sensory characteristics of soygurt as well as the relationship between each parameter. In addition, to formulate a gelatin concentration that produces soygurt with the chemical and physical characteristics that are most popular with panelists. This research is an experimental research in the laboratory with the independent variable being the concentration of chicken claw gelatin which consists of five levels, namely 0%, 0.3%, 0.5%, 0.7% and 0.9%. At each level, five repetitions were carried out so that there were a total of 25 research units. The control variables are the amount of soy milk and sugar. The parameters tested are chemical, physical and sensory parameters with a total of 12 indicators. Chemical characteristic testing includes protein content using the Lowry method, fat content using the Soxhlet method, water content using the thermogravimetric method, ash content using the furnace method, and pH using a pH meter. Testing of physical characteristics includes viscosity using a viscometer and color using a chromameter. Sensory testing with indicators of aroma, taste, texture, overall and purchase intention was carried out by 30 untrained panelists. Parametric data in the form of chemical and physical analysis was tested using normality and homogeneity tests, followed by Post Hoc tests (difference tests) and Pearson correlation tests. Non-parametric data, namely sensory, were analyzed using the Kruskal Wallis test and continued with the Mann Whitney test if there were significant differences. Correlation tests of chemical, physical and sensory parameters are connected graphically. The results showed that adding gelatin concentration to soygurt had an effect on increasing protein content, ash content, viscosity, a value and b* value, as well as decreasing fat content, water content, pH and L value. Protein content ranged from 3.35% to 5.02%, fat content 1.52% to 3.05%,*

moisture content 78.72% to 82.05%, ash content 0.49% to 0.75%, pH 4.42 to 4 .44, viscosity 519.9 cP to 925.4 cP, L value 83.33 to 84.43, a value 3.42 to 3.63, b* value 14.21 to 14.99, c* value 14 .4 to 15.42, and h* values 76.37 to 76.94. The research results also showed that the panelists' interest in soygurt products was significantly different ($p<0.05$) in the overall sensory indicator analysis. However, the overall quality score test did not differ significantly between treatments. The higher the concentration of gelatin added to soygurt, the viscosity of the soygurt increases due to the increase in protein content so that the water content, pH and brightness decrease. The addition of gelatin concentration increased the protein content, viscosity and ash content and reduced the fat content, water content, pH and brightness but did not affect the panelists' acceptance of the soygurt product.*