

RINGKASAN

Kandungan senyawa polifenol dalam biji kakao memiliki sifat antioksidan berpotensi untuk dikembangkan menjadi produk minuman coklat yang menyehatkan. Bubuk kakao dapat dipadukan dengan bahan lain untuk menciptakan rasa unik, seperti penambahan serbuk jeruk nipis yang meningkatkan aroma, rasa, nilai gizi, dan nilai jual. Permasalahan yang muncul dalam penelitian ini yaitu bubuk coklat secara alami memiliki *solubility* yang buruk karena memiliki kandungan *cocoa butter* yang bersifat hidrofobik. Untuk itu, diperlukan bahan pengisi atau penyalut dengan sifat hidrofilik seperti xanthan gum. Dalam industri makanan, xanthan gum digunakan sebagai pengental, penstabil, pengendali tekstur, pengikat air, dan pencegah kristal es pada produk beku.

Penelitian ini dilaksanakan di Laboratorium Pusat Riset Teknologi dan Proses Pangan, Badan Riset dan Inovasi Nasional, Playen, Gunungkidul, Yogyakarta. Penelitian ini merupakan penelitian eksperimental dengan menggunakan Rancangan Acak Lengkap (RAL) yang melibatkan satu faktor, yaitu variasi konsentrasi xanthan gum (0%, 0,1%, 0,2%, 0,3%, 0,4%, 0,5%). Penelitian dilaksanakan dengan 2 kali ulangan perlakuan dan 3 kali ulangan analisis. Data yang diperoleh dianalisis menggunakan *Analysis of Variance* (ANOVA) dengan *software* SPSS, dan jika terdapat perbedaan signifikan, dilanjutkan dengan uji *Duncan Multiple Range Test* (DMRT) pada tingkat kepercayaan 95%. Dan penentuan perlakuan terbaik pada minuman serbuk instan coklat – jeruk nipis dengan penambahan xanthan gum dilakukan dengan metode De Garmo.

Hasil penelitian menunjukkan bahwa penambahan xanthan gum terhadap karakteristik fisikokimia minuman serbuk instan coklat-jeruk nipis berpengaruh signifikan terhadap pH, a_w , kadar air, kadar abu, antioksidan, protein, karbohidrat *by difference*, warna, reologi, dan *solubility*, namun tidak berpengaruh signifikan terhadap kadar lemak, vitamin C, dan total fenol. Uji organoleptik menunjukkan bahwa xanthan gum berpengaruh signifikan terhadap rasa, namun tidak berpengaruh signifikan terhadap warna, aroma, konsistensi kelarutan, dan keseluruhan. Berdasarkan hasil analisis De Garmo menunjukkan bahwa formula dengan nilai tertinggi terdapat pada formula minuman serbuk instan coklat – jeruk nipis dengan penambahan xanthan gum 0,1%.

SUMMARY

The polyphenol compounds in cocoa beans have antioxidant properties with the potential to be developed into healthy chocolate beverages. Cocoa powder can be combined with other ingredients to create unique flavors, such as adding lime powder to enhance aroma, taste, nutritional value, and market value. The issue in this research is that cocoa powder naturally has poor solubility due to the hydrophobic nature of cocoa butter. Therefore, a hydrophilic filler or coating agent like xanthan gum is required. In the food industry, xanthan gum is used as a thickener, stabilizer, texture controller, water binder, and to prevent ice crystal formation in frozen products. This research aims to: 1) Determine the optimal amount of xanthan gum addition in the formulation of instant chocolate-lime powder drink, 2) Determine the effect of xanthan gum addition on the physicochemical and sensory characteristics of the instant chocolate-lime powder drink.

This research was conducted at the Laboratory of the Center for Food Technology and Process Research, National Research and Innovation Agency, Playen, Gunungkidul, Yogyakarta. It is an experimental study using a Completely Randomized Design (CRD) involving one factor, which is the variation in xanthan gum concentration (0%, 0,1%, 0,2%, 0,3%, 0,4%, 0,5%). The research was conducted with 2 treatment replications and 3 analysis replications. The obtained data were analyzed using Analysis of Variance (ANOVA) with software SPSS, and if significant differences were found, they were further analyzed using the Duncan Multiple Range Test (DMRT) at a 95% confidence level. The determination of the best treatment for the instant chocolate-lime powder drink with xanthan gum addition was performed using the De Garmo method.

The research results indicate that the addition of xanthan gum to the physicochemical characteristics of instant powdered chocolate-lime drink has a significant effect on pH, a_w , moisture content, ash content, antioxidants, protein, carbohydrate by difference, color, rheology, and solubility, but does not have a significant effect on fat content, vitamin C, and total phenols. Organoleptic tests show that xanthan gum significantly affects taste but does not significantly affect color, aroma, solubility consistency, and overall acceptance. Based on De Garmo's analysis, the formula with the highest score is the instant powdered chocolate-lime drink formula with the addition of 0,1% xanthan gum.