

RINGKASAN

Meningkatnya kesadaran masyarakat terhadap gaya hidup sehat mendorong konsumsi pangan fungsional, salah satunya minuman fungsional. Buah nanas dipilih menjadi bahan baku karena ketersediaan yang melimpah di Indonesia dan kandungan nutrisi yang kompleks, tetapi pemanfaatannya belum optimal dan terbatas. Minuman sari buah nanas merupakan salah satu diversifikasi pangan yang dapat dikembangkan. Sehingga, formulasi pada minuman sari buah nanas perlu diteliti. Penelitian ini bertujuan untuk (1) mengetahui pengaruh kombinasi perlakuan proporsi buah nanas dengan air dan jenis pemanis terhadap karakteristik sensoris, (2) mengetahui kombinasi perlakuan formulasi terbaik berdasarkan karakteristik sensoris, (3) mengetahui karakteristik kimia formulasi terbaik, dan (4) mengetahui biaya serta tingkat kelayakan produk.

Penelitian dilaksanakan di Laboratorium Teknologi Pertanian, Fakultas Pertanian, Universitas Jenderal Soedirman, Purwokerto pada bulan Maret 2025 hingga bulan Juli 2025. Penelitian ini menggunakan Rancangan Acak Lengkap dengan 2 faktor yaitu proporsi buah nanas dengan air (A) (buah nanas 1 kg : air 1 L; buah nanas 1 kg : air 2 L; buah nanas 1 kg : air 3 L) dan jenis pemanis (B) (gula pasir, gula kelapa, stevia). Penelitian dibagi menjadi 3 tahap yaitu tahap pertama pengujian karakteristik sensoris minuman sari buah nanas (rasa, tingkat kemanisan, warna dan aroma) yang dianalisis menggunakan *Friedman test* dan *Wilcoxon Signed Ranks Test*. Penentuan kombinasi perlakuan terbaik dilakukan dengan uji indeks efektifitas. Tahap kedua yaitu pengujian karakteristik kimia minuman sari buah nanas (vitamin C, kadar air, kadar abu, polifenol, nilai pH, total padatan terlarut, dan warna) terbaik secara sensoris. Tahap ketiga yaitu analisis biaya dan kelayakan produk minuman sari buah nanas.

Hasil penelitian menunjukkan bahwa kombinasi perlakuan proporsi buah nanas dengan air dan jenis pemanis memberikan pengaruh terhadap karakteristik minuman sari buah nanas. Peningkatan proporsi air dalam formulasi menyebabkan intensitas rasa, tingkat kemanisan, dan aroma menurun, namun dapat meningkatkan intensitas warna. Penggunaan stevia memberikan nilai tertinggi untuk atribut rasa dan tingkat kemanisan pada berbagai proporsi air. Gula pasir memberikan pengaruh yang tidak jauh berbeda dengan stevia terhadap atribut rasa, tingkat kemanisan, warna, dan aroma, sedangkan gula kelapa memiliki nilai terendah pada seluruh atribut sensoris. Formulasi minuman sari buah nanas terbaik berdasarkan karakteristik sensoris yaitu sampel minuman sari buah nanas dengan buah nanas 1 kg : air 1 L dan stevia. Karakteristik kimia minuman sari buah nanas terbaik yaitu mengandung vitamin C 0,044 mg/mL; kadar air 94,48%; kadar abu 0,153 %; polifenol 0,1164 mg/mL; nilai pH 3,65; total padatan terlarut 6,7 °Brix; serta warna dengan nilai L* 20,02 dan nilai b* 7,63. Secara analisis, minuman sari buah nanas layak untuk dikembangkan dengan total biaya produksi Rp13.083.806; harga jual Rp14.500; BEP 75%; NPV Rp50.848.029; IRR 456%; PP 0,22 bulan; PI 55; dan R/C ratio 1,33.

SUMMARY

Increased public awareness of healthy lifestyles has driven the consumption of functional foods, one of which is functional beverages. Pineapple was chosen as the raw material due to its abundant availability in Indonesia and complex nutritional content, but its utilization has not been optimal and is limited. Pineapple juice is one type of food diversification that can be developed. Therefore, the formulation of pineapple juice needs to be studied. This study aims to (1) determine the effect of the combination of pineapple fruit to water ratio and sweetener type on sensory characteristics, (2) determine the best formulation treatment combination based on sensory characteristics, (3) determine the chemical characteristics of the best formulation, and (4) determine the cost and feasibility of the product.

The research was conducted at the Agricultural Technology Laboratory, Faculty of Agriculture, Jenderal Soedirman University, Purwokerto from March 2025 to July 2025. This study used a completely randomized design with two factors, namely the proportion of pineapple to water (A) (1 kg pineapple : 1 L water; 1 kg pineapple : 2 L water; 1 kg pineapple : 3 L water) and type of sweetener (B) (granulated sugar, coconut sugar, stevia). The study was divided into three stages. The first stage involved testing the sensory characteristics of pineapple juice (taste, sweetness level, color, and aroma), which were analyzed using the Friedman test and Wilcoxon Signed Ranks Test. The best treatment combination was determined using an effectiveness index test. The second stage involved testing the chemical characteristics of the best-tasting pineapple juice (vitamin C, water content, ash content, polyphenols, pH value, total dissolved solids, and color). The third stage involved analyzing the cost and feasibility of the pineapple juice product.

The results of the study indicate that the combination of pineapple fruit proportion with water and sweetener type affects the characteristics of pineapple juice drinks. Increasing the proportion of water in the formulation causes a decrease in flavor intensity, sweetness level, and aroma, but can increase color intensity. The use of stevia provides the highest value for taste and sweetness attributes at various water proportions. Granulated sugar has a similar effect to stevia on taste, sweetness, color, and aroma attributes, while coconut sugar has the lowest value for all sensory attributes. The best pineapple juice drink formulation based on sensory characteristics is the pineapple juice drink sample with 1 kg of pineapple : 1 L of water and stevia. The chemical characteristics of the best pineapple juice drink are vitamin C content of 0.044 mg/mL; water content of 94.48%; ash content of 0.153%; polyphenols of 0.1164 mg/mL; pH value of 3.65; total dissolved solids of 6.7 oBrix; and color with an L value of 20.02 and a b* value of 7.63. Analytically, pineapple juice is feasible for development with a total production cost of Rp13,083,806; selling price of Rp14,500; BEP 75%; NPV Rp50,848,029; IRR 456%; PP 0.22 months; PI 55; and R/C ratio 1,33.*