

## RINGKASAN

Jambu biji merah merupakan salah satu komoditas buah-buahan yang produktivitas setiap tahunnya mengalami kenaikan. Jambu biji merah sangat rentan mengalami kerusakan dan pembusukan, sehingga dilakukan inovasi pembuatan *ready to drink*. Optimasi proporsi pemanis stevia dan maltodekstrin dilakukan pada penelitian ini untuk meningkatkan rasa manis dan kestabilan produk. Penelitian ini bertujuan untuk: (1) menetapkan proporsi pemanis stevia dan maltodekstrin yang menghasilkan produk *ready to drink* yang memiliki respon optimum; (2) mengkaji pengaruh kombinasi pemanis stevia dan maltodekstrin pada karakteristik sensori *ready to drink* jambu biji merah; (3) membandingkan karakteristik sensori kimia dari formula optimum dengan formula kontrol.

Penelitian ini dilakukan di Pusat Inovasi Pangan Dukuwaluh, dan Laboratorium Teknologi Pertanian, Fakultas Pertanian, Universitas Jenderal Soedirman. Penelitian ini dilakukan pada bulan Oktober 2023 hingga Juni 2024. Metode yang digunakan dalam penelitian ini yaitu *Response Surface Methodology* (RSM) dengan rancangan percobaan *Central Composite Design* (CCD). Data yang diperoleh dianalisis menggunakan *software Design Expert V.13* dan *SPSS IBM Statistics 25* dengan uji T pada taraf 95%. Variabel respons sensori yang diukur meliputi intensitas warna merah, aroma jambu biji merah, rasa jambu biji merah, rasa manis, rasa asam, homogenitas, dan kesukaan. Terdapat respons fisik yang diukur yaitu total padatan terlarut. Selain itu, respons kimia yang diukur meliputi kadar abu, protein, karbohidrat, lemak, dan antioksidan. Pengujian sensori pada tahap optimasi dilakukan oleh 35 panelis semi terlatih dengan 14 sampel, selanjutnya dilakukan tahap verifikasi dan validasi pada formula optimum. Hasil formula optimum dibandingkan dengan produk kontrol.

Penelitian ini menghasilkan formula optimum *ready to drink* dengan proporsi pemanis stevia sebesar 1,604% dan maltodekstrin sebesar 3,227%. Hasil uji sensori menunjukkan pemanis stevia berpengaruh terhadap peningkatan respons aroma jambu biji merah, rasa jambu biji merah, rasa manis, homogenitas, kesukaan, dan total padatan terlarut, serta menurunkan respons rasa asam dan warna merah. Proporsi maltodekstrin berpengaruh terhadap peningkatan aroma jambu biji merah, rasa asam, homogenitas, dan padatan terlarut, serta menurunkan respons warna merah, rasa jambu biji merah, rasa manis, dan kesukaan secara keseluruhan. *Ready to drink* formula optimum memiliki kadar abu, protein, lemak, dan antioksidan yang lebih tinggi dibanding formula kontrol. Atribut yang memiliki perbedaan signifikan yaitu kadar abu, protein, lemak, dan antioksidan.

## *SUMMARY*

Red guava is one of the fruit commodities whose productivity increases every year. Red guava is very susceptible to damage and rot, so innovations are made in making ready-to-drink. Optimization of the proportion of stevia and maltodextrin sweeteners was carried out in this study to increase the sweetness and stability of the product. This study aims to: (1) determine the proportion of stevia and maltodextrin sweeteners that produce ready-to-drink products that have an optimum response; (2) examine the effect of the combination of stevia and maltodextrin sweeteners on the sensory characteristics of red guava ready-to-drink; (3) compare the chemical sensory characteristics of the optimum formula with the control formula.

This research was conducted at the Dukuwaluh Food Innovation Center, and the Agricultural Technology Laboratory, Faculty of Agriculture, Jenderal Soedirman University. This research was conducted from October 2023 to June 2024. The method used in this study was the Response Surface Methodology (RSM) with a Central Composite Design (CCD) experimental design. The data obtained were analyzed using Design Expert V.13 software and SPSS IBM Statistics 25 with a T test at the 95% level. The sensory response variables measured included red color intensity, red guava aroma, red guava taste, sweetness, sourness, homogeneity, and preference. There was a physical response measured, namely total dissolved solids. In addition, the chemical responses measured included ash, protein, carbohydrate, fat, and antioxidant content. Sensory testing at the optimization stage was carried out by 35 semi-trained panelists with 14 samples, then the verification and validation stages were carried out on the optimum formula. The results of the optimum formula were compared with the control product. This study produced an optimum ready-to-drink formula with a proportion of stevia sweetener of 1.604% and maltodextrin of 3.227%. The results of the sensory test showed that stevia sweetener had an effect on increasing the response of red guava aroma, red guava taste, sweetness, homogeneity, preference, and total dissolved solids, as well as reducing the response of sour taste and red color. The proportion of maltodextrin affects the increase in red guava aroma, sour taste, homogeneity, and dissolved solids, and decreases the response of red color, red guava taste, sweet taste, and overall liking. The optimum ready to drink formula has higher ash, protein, fat, and antioxidant content than the control formula. The attributes that have significant differences are ash, protein, fat, and antioxidant content.