RINGKASAN

Buah salak merupakan komoditas tertinggi kelima dari total produksi buah di Indonesia. Buah salak umumnya dikonsumi dalam bentuk buah segar, namun buah segar tidak bisa disimpan dalam waktu yang lama. Alternatif yang dapat dilakukan adalah mengolah buah salak menjadi produk *fruit leather*. *Fruit leather* telah direkomendasikan oleh FAO sebagai cara yang efektif dan sederhana untuk mengawetkan buah. Buah salak memiliki kadar pektin yang rendah sehingga tekstur *fruit leather* yang dihasilkan liat dan kurang plastis. Tekstur *fruit leather* buah salak dapat diperbaiki dengan penambahan kappa karagenan dan CMC. Bahan tersebut merupakan hidrokoloid yang bersifat sebagai *gelling agent* sehingga dapat memperbaiki tekstur. Tujuan dari penelitian ini yaitu menetapkan proporsi kappa karagenan dan CMC untuk menghasilkan produk *fruit leather* buah salak yang memiliki respon sifat plastis, kelembutan, kekenyalan, *flavor* salak, dan kesukaan maksimum, serta kelengketan dan kekerasan minimum; mengkaji karakteristik sifat sensori *fruit leather* buah salak dengan formula hasil rekomendasi program *design expert*; membandingkan karakteristik sensori dan kimia produk *fruit leather* buah salak formula optimum dan kontrol.

Penelitian ini menggunakan metode permukaan respon (*Response Surface Methodolog//*RSM) dengan rancangan percobaan *Central Composite Design* (CCD). Penelitian dilakukan dengan dua faktor yakni kappa karagenan dan CMC dengan dua kali ulangan sehingga diperoleh 14 kombinasi perlakuan. Analisis data untuk optimasi produk dilakukan menggunakan aplikasi *Design Expert* V.11 *for trial*. Analisis data untuk karakterisasi sensori dan kimia produk optimum dan kontrol dilakukan menggunakan aplikasi IBM SPSS *Statistics* 25 pada taraf kesalahan 5%.

Hasil penelitian ini yaitu formula optimum *fruit leather* buah salak diperoleh dari proporsi kappa karagenan 0,37% dan CMC 0,09% dengan nilai *desirability* tertinggi 0,61. Hasil uji sensori *fruit leather* buah salak menunjukkan bahwa peningkatan proporsi kappa karagenan menyebabkan peningkatan respon sifat plastis, kekenyalan, kelengketan, kekerasan dan kesukaan serta penurunan respon kelembutan dan *flavor* salak. Peningkatan proporsi CMC menyebabkan peningkatan respon sifat plastis, kekenyalan dan kekerasan, serta penurunan respon kelembutan, kelengketan, *flavor* salak, dan kesukaan. Hasil uji kimia produk optimum memiliki kadar air 28,99%, kadar abu 1,90%, kadar lemak 2,59% yang berbeda nyata dan lebih tinggi dibandingkan dengan kontrol. Sementara itu, kadar karbohidrat produk optimum sebesar 86,52% dan lebih rendah dibandingkan dengan kontrol.

Kata kunci: *fruit leather*, buah salak, kappa karagenan, CMC, optimasi, sensori, kimia, optimum, kontrol.

SUMMARY

Snake fruit is the fifth-highest commodity of total fruit production in Indonesia. Snake fruit is generally consumed in the form of fresh fruit, but fresh fruit cannot be stored for a long time. An alternative that can be done is to process snake fruit into fruit leather products. Fruit leather has been recommended by FAO as an effective and simple way to preserve fruit. Snake fruit has a low pectin content so that resulting its texture is tough and has low plasticity. The texture of snake fruit leather can be improved by adding kappa carrageenan and CMC. Both of them are hydrocolloid which acts as a gelling agent that it can improve the texture. The purpose of this research is determine the proportion of kappa carrageenan and CMC to produce snake fruit leather products that have responses plasticity, softness, springiness, salak flavor, and preference in maximum also minimum in adhesiveness and hardness; assessing the characteristics of the sensory properties of the snake fruit leather with the formula recommended by the design expert program; comparing the sensory and chemical characteristics of the snake fruit leather products with optimum and control formulas.

This study used the Response Surface Methodology (RSM) with an experimental design using the Central Composite Design (CCD). The study was conducted with two factors, kappa carrageenan and CMC with two replications so that 14 combinations were obtained. Data analysis for product optimization was carried out using the Design Expert V.11 for trial application. Data analysis for the sensory and chemical characterization of optimum and control products was performed using the IBM SPSS Statistics 25 application at an error level of 5%.

The results of this study were the optimum formula for snake fruit leather obtained at the proportion of 0.37% kappa carrageenan and 0.09% CMC with the highest desirability value of 0,61. The results of the sensory fruit leather test of snake fruit showed that an increase in the proportion of kappa carrageenan led to an increase in the response to plasticity, springiness, adhesiveness, hardness, and preference and a decrease in the softness and flavor response of salak. The increase in the proportion of CMC causes an increase in the response of plastic properties, elasticity, and hardness as well as a decrease in the response of softness, adhesiveness, salak flavor, and preference. The results of the chemical test of the optimum product had a water content of 28.99%, ash content of 1.90%, fat content of 2.59% which were significantly different and higher than the control. Meanwhile, carbohydrate content of the optimum product was 86.52% which was lower than the control.

Keywords : fruit leather, snake fruit, kappa carageenan, CMC, optimization, sensory, chemical, optimum, control.