

## RINGKASAN

Buah carica merupakan komoditas pertanian unggulan Wonosobo. Pada 1 kg buah carica terdapat 10% biji carica yang belum dimanfaatkan dengan baik. Serbuk minuman fungsional biji carica merupakan salah satu diversifikasi olahan carica. Informasi umur simpan menjadi penting karena produk akan direkomendasikan ke UKM di Wonosobo. Tujuan penelitian ini yaitu, 1) mengkaji perubahan sifat kimia dan sensori serbuk minuman fungsional biji carica yang disimpan dengan jenis kemasan yang berbeda, 2) mengkaji perubahan sifat kimia dan sensori serbuk minuman fungsional biji carica yang disimpan pada suhu penyimpanan yang berbeda, 3) mengkaji perubahan sifat kimia dan sensori serbuk minuman fungsional biji carica yang disimpan pada waktu penyimpanan yang berbeda, 4) menetapkan umur simpan serbuk minuman fungsional biji carica yang dikemas dengan 2 jenis kemasan berdasarkan parameter kritis kadar air.

Penelitian ini dilaksanakan di Laboratorium Pusat Inovasi Pangan Purwoketo dan Laboratorium Teknologi Pertanian, Universitas Jenderal Soedirman. Tahapan penelitian meliputi persiapan, pembuatan produk, analisis sifat kimia dan sensori, analisis data dan penetapan umur simpan. Formulasi serbuk minuman fungsional biji carica yaitu 72% biji carica dan 28% buah nangka kering. Proses pembuatannya meliputi, perendaman biji carica dengan asam sitrat 0,2%, pengukusan selama 1 jam, fermentasi dengan *Rhizopus oligosporus* selama 75 jam, pengeringan pada suhu 60°C selama 8 jam, penggilingan biji carica dan buah nangka kering, dan pengayakan. Produk dikemas menggunakan *aluminium foil* dan botol kaca, lalu di simpan dalam inkubator pada suhu 35°C, 45°C, dan 55°C. Analisis sifat kimia dan sensori dilakukan setiap hari ke 5 selama 20 hari. Analisis kimia meliputi kadar air, kadar vitamin C, dan aktivitas antioksidan. Analisis sensori meliputi warna coklat, rasa pahit, *aftertaste astringent*, *flavor fruity*, dan kesukaan. Rancangan percobaan yang digunakan adalah metode *accelerated testing* dengan persamaan Arrhenius.

Hasil penelitian menunjukkan, 1) produk yang dikemas menggunakan *aluminium foil* memiliki kadar vitamin C dan kesukaan keseluruhan lebih tinggi dibandingkan dengan produk yang dikemas botol kaca, sedangkan kadar air dan aktivitas antioksidan lebih rendah, 2) Peningkatan suhu dari 35°C sampai 55°C menyebabkan kadar air meningkat 5,25%, warna coklat meningkat 10,68%, kadar vitamin C menurun 10,89%, aktivitas antioksidan menurun 4,58%, *aftertaste astringent* menurun 8,64%, *flavor fruity* menurun 3,69%, dan kesukaan menurun 2,71%, 3) Semakin lama waktu penyimpanan dari 0 hari sampai 20 hari menyebabkan kadar air meningkat 19,58%, kadar vitamin C menurun 82,43%, aktivitas antioksidan menurun 64,21%, warna coklat menurun 19,65%, rasa pahit menurun 24,89%, *aftertaste astringent* menurun 10%, *flavor fruity* menurun 12,47%, dan kesukaan menurun 18,51%, 4) umur simpan produk yang dikemas menggunakan *aluminium foil* pada suhu ruang (25°C) adalah 1 tahun 1 bulan, sedangkan pada suhu *refrigerator* (8°C) adalah 1 tahun 4 bulan. Umur simpan produk yang dikemas menggunakan botol kaca pada suhu ruang (25°C) adalah 5 bulan, sedangkan pada suhu *refrigerator* (8°C) adalah 6 bulan.

Kata kunci : serbuk minuman fungsional, biji carica, umur simpan, Arrhenius

## SUMMARY

*Carica* is Wonosobo's superior agricultural commodity. In 1 kg of *carica*, 10% of the seeds are untapped. *Carica* seed functional drink powder is one of the diversification of *carica* processed product. Shelf life information is important because the product will be recommended to UKM in Wonosobo. The purpose of this study are, 1) examine changes in chemical and sensory properties of *carica* seed functional drink powder that stored in different types of packaging, 2) examine changes in chemical and sensory properties of *carica* seed functional drink powder that stored at different storage temperature, 3) examine changes in chemical and sensory properties of *carica* seed functional drink powder that stored at different storage times, 4) determine shelf life of *carica* seed functional drink powder which is packaged in 2 types of packaging based on critical parameters of water content.

This research was conducted at the Purwokerto Food Innovation Center and Agricultural Technology Laboratory, Jenderal Soedirman University. The stages of the research are, preparation, production, chemical and sensory properties analysis, data analysis and determination of shelf life. Formulation of *carica* seed functional drink powder are 72% *carica* seeds and 28% dried jackfruit. The making process includes soaking *carica* seeds with 0,2% citric acid, steaming for 1 hours, fermentation with *Rhizopus oligosporus* for 75 hours, drying at 60°C for 8 hours, grinding *carica* seeds and dried jackfruit, and sifting. Products are packed using aluminium foil and glass bottles, then stored in an incubator at 35°C, 45°C, and 55°C. Chemical and sensory analysis was carried out every 5<sup>th</sup> day for 20 days. Chemical analysis includes water content, vitamin C levels, and antioxidant activity. Sensory analysis includes brown color, bitter taste, aftertaste astringent, flavor fruity, and preference. Design of experiment used accelerated testing method with the Arrhenius equation.

The result showed that, 1) product packaged using aluminium foil had a higher vitamin C levels and preference, while water content and antioxidant activity were lower than those packed with glass bottles, 2) increased temperature from 35°C to 55°C causing increased water content 5,25%, increased brown color 10,68%, decreased vitamin C levels 10,89%, decreased antioxidant activity 4,58%, decreased aftertaste astringent 8,64%, decreased flavor fruity 3,69%, and decreased preference 2,71%, 3) the longer of storage time from 0 day to 20 days causing increased water content 19,58%, decreased vitamin C levels 82,43%, decreased antioxidant activity 64,21%, decreased brown color 19,65%, decreased bitter taste 24,89%, decreased aftertaste astringent 10%, decreased flavor fruity 12,47%, and decreased preference 18,51%, 4) the shelf life of products that packaged using aluminium foil at room temperature (25°C) is 1 year 1 month, while at refrigerator temperature (8°C) is 1 year 4 month. The shelf life of products that packaged using glass bottles at room temperature (25°C) is 5 month, while at refrigerator temperature (8°C) is 6 month.

*Keywords* : functional drink powder, *carica* seeds, shelf life, Arrhenius