

INTISARI

Kolagen tripeptida merupakan hasil hidrolisis kolagen menjadi tripeptida yang menunjukkan efek hidrasi dan mencegah penuaan pada kulit. Kolagen tripeptida dapat dikombinasikan bersama dengan buah salak (*Salacca zalacca*) yang memiliki berbagai manfaat untuk kesehatan. Tujuan penelitian ini adalah untuk mengetahui pengaruh konsentrasi maltodekstrin dan suhu inlet terhadap sifat fisik minuman instan menentukan formula optimum melalui metode *full factorial design*.

Minuman instan kolagen tripeptida dan salak dibuat dengan variasi konsentrasi maltodekstrin 10% b/v dan 25% b/v serta suhu inlet 125°C dan 175°C. Formula optimum minuman instan diperoleh melalui *full factorial design* yang ditentukan berdasarkan kadar kolagen dan sifat fisik meliputi rendemen, higroskopisitas, indeks kelarutan air (IKA), indeks penyerapan air (IPA), dan *moisture content*. Pengujian kadar kolagen dilakukan menggunakan metode *bicinchoninic acid (BCA) protein assay*.

Hasil penelitian menunjukkan bahwa peningkatan suhu inlet berpengaruh terhadap peningkatan IKA dan kadar kolagen, serta penurunan *moisture content* dari minuman instan. Peningkatan konsentrasi maltodekstrin berpengaruh terhadap peningkatan rendemen dan IKA, serta penurunan IPA dan higroskopisitas. Konsentrasi maltodekstrin 24,703% b/v dan suhu inlet 175°C menghasilkan formula optimum minuman instan kolagen tripeptida dan salak dengan nilai rendemen 20,86%, higroskopisitas $20,81 \pm 0,24\%$, indeks kelarutan air $93,19 \pm 0,87\%$, indeks penyerapan air $12,78 \pm 0,64\%$, *moisture content* $2,17 \pm 0,29\%$, dan kadar kolagen $67,92 \pm 2,4$ mg/g.

Kata Kunci: Kolagen Tripeptida, Salak, Maltodekstrin, Suhu Inlet

ABSTRACT

Collagen tripeptide results from collagen hydrolysis into tripeptides which exhibits hydration effects and prevents skin aging. Collagen tripeptide can be formulated into powdered instant drink through spray drying with the addition of snake fruit which has many health benefits. This study aims to evaluate the effect of inlet temperature and maltodextrin concentration on collagen content and physical properties of the instant drink and determine the optimum formula based on full factorial design.

Collagen tripeptide and snake fruit juice were formulated into instant drinks with maltodextrin concentration variations of 10% w/v and 25% w/v and inlet temperature variations of 125°C and 175°C. The optimum formula was obtained through full factorial design which was determined based on collagen content and physical properties including product yield, hygroscopicity, water solubility index (WSI), and water absorption index (WAI), and moisture content. Collagen content of the instant drink was tested using bicinchoninic acid (BCA) protein assay method.

The results showed that inlet temperature had positive effects on WSI and collagen content, and a negative effect on moisture content of the instant drink. Higher maltodextrin concentration increased product yield and WSI, and decreased WAI and hygroscopicity. Maltodextrin concentration of 24.703% w/v and inlet temperature of 175°C produced the instant drink optimum formula with a yield value of 20.86%, hygroscopicity of $20.81 \pm 0.24\%$, water solubility index of $93.19 \pm 0.87\%$, water absorption index of $12.78 \pm 0.64\%$, moisture content of $2.17 \pm 0.29\%$, and collagen content of 67.92 ± 2.4 mg/g.

Keywords: Collagen Tripeptide, Snake Fruit, Maltodextrin, Inlet Temperature