

## INTISARI

Kolagen tripeptida merupakan bentuk kolagen terhidrolisis yang terdiri dari tiga asam amino berurutan dan memiliki tingkat penyerapan tinggi dalam tubuh. Kolagen tripeptida berpotensi digunakan sebagai bioaktif dalam produk *nutricosmetic*, terutama dalam meningkatkan kesehatan kulit dan berfungsi sebagai agen anti-penuaan. Salah satu bentuk sediaan yang menarik untuk produk ini dan belum banyak dikembangkan di Indonesia adalah *gummy candy* karena mudah diterima secara organoleptis. Namun, kandungan sukrosa yang terlalu tinggi dapat menghambat efektivitas kolagen dalam tubuh serta memengaruhi struktur dan stabilitas fisik produk. Penelitian ini bertujuan untuk memperoleh formula optimum *tripeptide collagen gummy candy* serta mengetahui pengaruh komposisi sukrosa dan kolagen tripeptida terhadap karakteristik fisik dan atribut sensoris *gummy candy*.

Pemilihan variabel sukrosa dan kolagen dalam penelitian ini didasarkan pada perbedaan pengaruh keduanya terhadap karakteristik fisik dan atribut sensoris *gummy candy*. *Tripeptide collagen gummy candy* diformulasikan sebanyak 8 *run* dengan 8 variasi komposisi sukrosa dan kolagen tripeptida, dilanjutkan uji karakteristik fisik, pengukuran kadar kolagen, dan hedonik. Dilakukan optimasi formula melalui *simplex lattice design* (SLD) yang dianalisis menggunakan *Design-Expert Software* versi 13 berdasarkan respon kadar air, sineresis, karakteristik tekstur, dan hasil uji hedonik. Kemudian dianalisis formula optimum menggunakan *one sample t-test* dan *one sample Wilcoxon-signed test*.

Hasil penelitian menunjukkan bahwa komposisi sukrosa dan kolagen tripeptida berpengaruh signifikan terhadap kadar air, sineresis, karakteristik tekstur, dan penerimaan sensoris *gummy candy*. Formula optimum diperoleh pada kombinasi 2,152% kolagen tripeptida dan 33,848% sukrosa. Formula optimum memiliki kadar air  $13,34 \pm 1,217\%$ , sineresis  $11,008 \pm 0,587\%$ , *gumminess*  $14,489 \pm 2,017$  N, *springiness*  $0,709 \pm 0,0124$ , *chewiness*  $10,284 \pm 0,7962$  N, tingkat kesukaan yang tinggi pada respon sensoris, dan kadar kolagen  $1,465 \pm 0,084$  mg/mg.

**Kata kunci:** *Gummy candy*, kolagen tripeptida, *nutricosmetic*, sukrosa

## ABSTRACT

The tripeptide collagen is a hydrolyzed collagen form that consisting of three amino acids in sequence and has high absorption in the body. Tripeptide collagen can serve as an bioactive compound in nutricosmetic product, particularly in promoting skin health and serving as an anti-aging agent. One of the interesting dosage forms for this product and has not been widely developed in Indonesia in gummy candy because it is easily accepted organoleptically. However, too high sucrose content can inhibit the effectiveness of collagen in the body and affect the structure and physical stability of the product. The research aims to find out the optimum formula for tripeptide collagen gummy candy and to determine the effect of sucrose and tripeptide collagen composition on the physical characteristics and sensory attributes of gummy candy.

The selection of sucrose and tripeptide collagen variables in this study based on the difference in their effects on the physical characteristics and sensory attributes of gummy candy. Tripeptide collagen gummy candy was formulated in 8 runs with 8 variations of sucrose and tripeptide collagen composition, followed by physical characteristic test, collagen content measurement, and hedonic test. Formula optimization was carried out through simplex lattice design (SLD) which was analyzed using Design-Expert Software version 13 based on the response of moisture content, syneresis, texture characteristics, and hedonic test results. Then the optimum formula was analyzed using a one sample t-test and one sample Wilcoxon-signed test.

The results showed that the composition of sucrose and tripeptide collagen had a significant effect on moisture content, syneresis, texture characteristics, and sensory acceptance of gummy candy. The optimum formula was obtained in a combination of 2,152% tripeptide collagen and 33,848% sucrose. The optimum formula had a moisture content of  $13,34 \pm 1,217\%$ , syneresis of  $11,008 \pm 0,587\%$ , gumminess of  $14,489 \pm 2,017$  N, springiness of  $0,709 \pm 0,0124$ , chewiness of  $10,284 \pm 0,7962$  N, a high level of preference in sensory responses, and collagen content of  $1,465 \pm 0,084$  mg/mg.

**Keywords:** Gummy candy, tripeptide collagen, nutricosmetic, sucrose