

INTISARI

Stres oksidatif berkaitan erat dengan proses penuaan dan patofisiologi penyakit degeneratif. Efek kumulatif dari stres oksidatif dapat dikurangi dengan konsumsi antioksidan. Bunga krisan (*Chrysanthemum indicum* L.) mengandung senyawa flavonoid yang mempunyai aktivitas antioksidan sehingga berpotensi untuk dikembangkan menjadi suplemen kesehatan, salah satunya *gummy candy*. Sediaan *gummy candy* diharapkan dapat meningkatkan penerimaan konsumen dewasa maupun remaja. Penelitian ini bertujuan untuk memperoleh formula optimum *gummy candy* bunga krisan dengan variasi komposisi gelatin dan pektin sebagai *gelling agent* serta mengevaluasi aktivitas antioksidan bunga krisan sebelum dan sesudah proses formulasi.

Bunga krisan diekstraksi dengan metode maserasi menggunakan etanol 70% kemudian diuapkan hingga menjadi ekstrak kental. Ekstrak kental bunga krisan diformulasikan menjadi *gummy candy* sebanyak 8 *run* dengan 5 variasi komposisi gelatin dan pektin kemudian dievaluasi karakteristik fisiknya meliputi uji organoleptik, keseragaman bobot, elastisitas, dan kadar air. Dilakukan optimasi dengan metode *simplex lattice design* (SLD) kemudian dilakukan verifikasi formula optimum berdasarkan nilai prediksi SLD. Uji aktivitas antioksidan ekstrak dan *gummy candy* bunga krisan dilakukan dengan metode penangkapan radikal DPPH.

Formula optimum *gummy candy* yang diperoleh adalah kombinasi gelatin 9,024 gram dan pektin 0,976 gram dengan total bobot tiap *batch* adalah 78,4 gram. Formula optimum mempunyai keseragaman bobot yang baik dengan nilai CV 1,310%, elastisitas mendekati produk pembanding (1,769%), dan kadar air rendah (3,13%). Ekstrak bunga krisan dan *gummy candy* ekstrak bunga krisan mempunyai aktivitas antioksidan kuat dengan nilai IC_{50} ekstrak adalah $67,80 \pm 2,37 \mu\text{g/mL}$ sedangkan nilai IC_{50} *gummy candy* adalah $82,93 \pm 2,55 \mu\text{g/mL}$.

Kata kunci : *Chrysanthemum indicum*, antioksidan, *gummy candy*, gelatin-pektin

ABSTRACT

Oxidative stress is closely related to the aging process and the pathophysiology of degenerative diseases. The cumulative effect of oxidative stress can be reduce by consuming antioxidants. Chrysanthemum flowers (*Chrysanthemum indicum* L.) contain flavonoid compounds that have antioxidant activity so they have the potential to be developpe into health supplements, such as gummy candy. This study aims to obtain the optimum gummy candy formula with variations of gelatin and pectin composition as gelling agents and to evaluate the antioxidant activity of chrysanthemum flowers before and after formulation.

Chrysanthemum flowers were extracted by maceration method using 70% ethanol and then evaporated to become a thick extract. Chrysanthemum thick extract was formulated into eight runs of gummy candy with five variations of gelatin and pectin composition and then evaluated for its physical characteristics including organoleptic tests, weight uniformity, elasticity, and moisture content. Optimization was performed using the simplex lattice design (SLD) method and then the verification of the optimum formula was carried out based on the predicted value of SLD. The antioxidant activity test of chrysanthemum flower extract and gummy candy was performed using the DPPH radical scavenging method.

The optimum gummy candy formula obtained was a combination of 9.024 grams of gelatin and 0.976 grams of pectin with a total batch weight was 78.4 grams. The optimum formula has good weight uniformity with a CV value of 1.310%, elasticity close to the comparator product (1.769%), and low water content (3.13%). Chrysanthemum flower extract and chrysanthemum flower extract gummy candy had strong antioxidant activity with IC_{50} values of the extracts were $67.80 \pm 2.37 \mu\text{g/mL}$ while gummy candy IC_{50} values were $82.93 \pm 2.55 \mu\text{g/mL}$.

Keywords: *Chrysanthemum indicum*, antioxidant, gummy candy, gelatin-pectin