

INTISARI

Meningkatnya kejadian penyakit kronis dan degeneratif salah satunya disebabkan paparan radikal bebas. Tanaman pegagan (*Centella asiatica* (L.) Urban) diketahui mengandung komponen bioaktif yang berfungsi sebagai antioksidan untuk menangkal radikal bebas dan memperbaiki daya ingat. Penelitian ini bertujuan untuk mengetahui pengaruh variasi kombinasi gelatin sapi dan pektin sebagai basis terhadap karakteristik fisik, mengetahui formula optimum *gummy candy*, dan mengetahui aktivitas antioksidan dari sediaan *gummy candy* ekstrak herba pegagan.

Ekstrak herba pegagan dibuat dengan metode maserasi menggunakan pelarut etanol 70%. Ekstrak diuji antioksidan dengan metode reduksi DPPH lalu diformulasikan dalam sediaan *gummy candy*. Sediaan diuji karakteristiknya meliputi organoleptis, pH, elastisitas, keseragaman bobot, dan susut pengeringan serta diuji aktivitas antioksidan kembali untuk setiap produk *gummy candy*. Respon tiap karakteristik dianalisis dan dioptimasi dengan metode *simplex lattice design* (SLD) menggunakan *software design expert* versi 13. Formula optimum diverifikasi dan dianalisis signifikansi dengan *one sample t-test*.

Hasil penelitian menunjukkan bahwa komposisi gelatin sapi dan pektin berpengaruh terhadap peningkatan elastisitas, keseragaman bobot, dan susut pengeringan. Formula optimum yang diperoleh adalah variasi gelatin sapi sebanyak 9,09 g dan pektin sebanyak 0,91 g. Potensi antioksidan pada sediaan *gummy candy* lebih lemah (nilai IC_{50} sebesar 166,50 $\mu\text{g/mL}$) daripada potensi antioksidan ekstrak herba pegagan (nilai IC_{50} sebesar 129,63 $\mu\text{g/mL}$) dan kontrol positif (nilai IC_{50} sebesar 3,60 $\mu\text{g/mL}$). Hasil analisis verifikasi formula optimum menunjukkan bahwa tidak ada perbedaan signifikan antara nilai prediksi dan hasil percobaan pada semua parameter (Sig.2-tailed > 0,05).

Kata Kunci: Pegagan, Antioksidan, *Gummy Candy*, Gelatin Sapi - Pektin

ABSTRACT

The increasing incidence of chronic and degenerative diseases is caused by exposure to free radicals. Centella asiatica (L.) Urban is known to contain bioactive components that function as antioxidants to ward off free radicals and improve memory. This study aims to determine the effect of various combinations of bovine gelatin and pectin as a basis on physical characteristics, determine the optimum gummy candy formula, and determine the antioxidant activity of gummy candy preparations of gotu kola herb extract.

Centella asiatica herb extract was prepared by maceration method using 70% ethanol solvent. The extract was tested for antioxidants using the DPPH reduction method and then formulated into gummy candy. The characteristics of the preparation were tested including organoleptic, pH, elasticity, weight uniformity, and moisture content, and tested again for antioxidant activity for each gummy candy product. Responses for each characteristic were analyzed and optimized using the simplex lattice design (SLD) method using software design expert version 13. The optimum formula was verified and significance was analyzed using one sample t-test.

*The results showed that the composition of bovine gelatin and pectin affected increasing elasticity, weight uniformity, and moisture content. The optimum formula obtained was a variation of bovine gelatin of as much as 9.09 g and pectin of as much as 0.91 g. The antioxidant potential of gummy candy was weaker (IC_{50} value of 166.50 $\mu\text{g/mL}$) than the antioxidant potential of *Centella asiatica* extract (IC_{50} value of 129.63 $\mu\text{g/mL}$) and control positive (IC_{50} value of 3.60 $\mu\text{g/mL}$). The results of the optimum formula verification analysis showed that there was no significant difference between the predicted value and the experimental results for all parameters (Sig.2-tailed > 0.05).*

Keywords: *Centella asiatica, Antioxidant, Gummy Candy, Beef Gelatin - Pectin*