

**FORMULASI DAN EVALUASI AKTIVITAS ANTIOKSIDAN SEDIAAN
MOISTURIZER BALM STICK BERBASIS EKSTRAK ETANOL DAUN
KACAPIRING (*Gardenia jasminoides* J. Ellis)**

ABSTRAK

Daun kacapiring (*Gardenia jasminoides* J. Ellis) mengandung metabolit sekunder seperti flavonoid, tanin, dan saponin yang berpotensi sebagai antioksidan alami untuk menangkal radikal bebas yang dapat menyebabkan kerusakan sel kulit, penuaan dini, kulit kusam, serta menurunnya kelembapan kulit. Penelitian ini bertujuan untuk memformulasikan ekstrak etanol daun kacapiring menjadi sediaan *moisturizer balm stick*, mengevaluasi mutu sediaan, dan menentukan aktivitas antioksidan dengan metode DPPH. Penelitian ini merupakan penelitian eksperimental laboratorium meliputi preparasi sampel dan ekstraksi dengan metode maserasi menggunakan pelarut etanol, skrining fitokimia, membuat formulasi *moisturizer balm stick* pada konsentrasi ekstrak F1 (4%), F2 (6%), F3 (8%), serta blanko (F0), evaluasi mutu sediaan, serta pengujian aktivitas antioksidan berdasarkan nilai IC_{50} . Evaluasi mutu sediaan meliputi uji organoleptik (bentuk, warna, aroma), uji fisik (homogenitas, daya sebar, pH, titik leleh, stabilitas, kelembapan kulit) dan uji iritasi. Hasil penelitian menunjukkan bahwa dari 200 g serbuk simplisia diperoleh ekstrak kental sebanyak 72,72 g dengan rendemen 36%. Skrining fitokimia menunjukkan adanya kandungan flavonoid, steroid, alkaloid, saponin, dan tanin. Seluruh formula memiliki bentuk semi solid, homogen, berwarna hijau hingga hijau pekat, serta beraroma khas ekstrak. Hasil daya sebar memenuhi persyaratan yaitu 3-5 cm dan titik leleh 50-70°C, uji stabilitas menunjukkan tidak terjadi perubahan selama penyimpanan, serta tidak menimbulkan iritasi. Hasil pengujian aktivitas antioksidan memiliki nilai IC_{50} ekstrak sebesar 33,194 µg/mL menunjukkan kategori antioksidan sangat kuat. Disimpulkan bahwa ekstrak etanol daun kacapiring berhasil diformulasikan menjadi *moisturizer balm stick* yang memenuhi persyaratan mutu fisik, stabil, aman digunakan, dan memiliki aktivitas antioksidan sangat kuat.

Kata kunci: Daun kacapiring, *moisturizer balm stick*, antioksidan, DPPH, IC_{50} .

**FORMULATION AND EVALUATION OF ANTIOXIDANT ACTIVITY
OF MOISTURIZER BALM STICK PREPARATION BASED ON
ETHANOL EXTRACT OF GARDENIA LEAVES (*Gardenia jasminoides* J.
Ellis)**

ABSTRACT

Gardenia leaves (*Gardenia jasminoides* J. Ellis) contain secondary metabolites such as flavonoids, tannins, and saponins, which have the potential to act as natural antioxidants by scavenging free radicals that can cause skin cell damage, premature aging, dull skin, and reduced skin moisture. This study aimed to formulate the ethanol extract of Gardenia leaves into a moisturizer balm stick, evaluate the quality of the formulation, and determine its antioxidant activity using the DPPH method. This laboratory experimental study included sample preparation and extraction by maceration using ethanol as the solvent, phytochemical screening, formulation of moisturizer balm sticks containing ethanol extract at concentrations of F1 (4%), F2 (6%), F3 (8%), and a blank formulation (F0), evaluation of the physical quality of the formulations, and determination of antioxidant activity based on the IC_{50} value. The quality evaluation included organoleptic tests (appearance, color, and odor), physical tests (homogeneity, spreadability, pH, melting point, stability, and skin moisture), and an irritation test. The results showed that 72.72 g of concentrated extract was obtained from 200 g of simplicia powder, corresponding to a yield of 36%. Phytochemical screening revealed the presence of flavonoids, steroids, alkaloids, saponins, and tannins. All formulations were semi-solid, homogeneous, green to dark green in color, and possessed the characteristic odor of the extract. The spreadability values met the required range of 3–5 cm, the melting points ranged from 50–70°C, the stability test showed no changes during storage, and no irritation was observed. The antioxidant activity test demonstrated that the ethanol extract had an IC_{50} value of 33.194 $\mu\text{g/mL}$, indicating very strong antioxidant activity. In conclusion, the ethanol extract of Gardenia leaves was successfully formulated into a moisturizer balm stick that met the required physical quality standards, was stable and safe for use, and exhibited very strong antioxidant activity.

Keywords: gardenia leaves, moisturizer balm stick, antioxidant, DPPH, IC_{50}