

ABSTRAK

Kosmetik alami semakin diminati karena dinilai lebih aman dan ramah lingkungan. Salah satu produk yang berkembang adalah face mist yang berfungsi meningkatkan hidrasi sekaligus melindungi kulit dari paparan radikal bebas. Belimbing wuluh (*Averrhoa bilimbi* L.) diketahui mengandung flavonoid, fenolik, dan vitamin C yang berpotensi sebagai antioksidan alami, sehingga berpeluang diformulasikan dalam sediaan kosmetik. Penelitian ini bertujuan mengevaluasi pengaruh variasi konsentrasi ekstrak etanol 96% belimbing wuluh terhadap karakteristik fisik sediaan face mist serta menentukan konsentrasi paling optimal berdasarkan aktivitas antioksidan menggunakan metode DPPH. Ekstrak buah belimbing wuluh diperoleh melalui metode maserasi menggunakan etanol 96%, diuapkan dengan rotary evaporator dan dilanjutkan dengan uji fitokimia. Ekstrak kemudian diformulasikan dalam tiga variasi konsentrasi sediaan face mist. Evaluasi karakteristik fisik meliputi uji organoleptis, homogenitas, pH, bobot jenis, viskositas dan stabilitas fisik. Aktivitas antioksidan diuji menggunakan metode DPPH pada panjang gelombang 516,5 nm untuk menentukan % inhibisi dan nilai IC_{50} . Seluruh formula memenuhi parameter fisik sediaan face mist. Peningkatan konsentrasi ekstrak memengaruhi karakteristik organoleptis warna dan menyebabkan penurunan nilai pH, namun masih berada dalam rentang pH kulit yang aman (4,5-8,0). Aktivitas antioksidan meningkat seiring kenaikan konsentrasi. Formula FIII memberikan hasil terbaik dengan nilai IC_{50} sebesar 150,90 ppm yang termasuk kategori sedang. Ekstrak belimbing wuluh berpotensi sebagai bahan aktif antioksidan dalam sediaan face mist alami. Formula FIII menunjukkan aktivitas antioksidan terbaik serta memenuhi seluruh parameter fisik sediaan sehingga berpotensi dikembangkan sebagai kosmetik alami antioksidan.

Kata kunci: Face mist, Belimbing Wuluh, Antioksidan, DPPH, IC_{50}

ABSTRACT

*Natural cosmetics are increasingly preferred because they are considered safer and more environmentally friendly. One of the growing products is face mist, which functions to improve skin hydration while protecting the skin from free radical exposure. Bilimbi fruit (*Averrhoa bilimbi* L.) is known to contain flavonoids, phenolics, and vitamin C which have potential as natural antioxidants, making it suitable to be formulated into cosmetic preparations. This study aimed to evaluate the effect of different concentrations of 96% ethanol extract of bilimbi fruit on the physical characteristics of face mist preparations and to determine the most optimal concentration based on antioxidant activity using the DPPH method. Bilimbi fruit extract was obtained by maceration using 96% ethanol, evaporated with a rotary evaporator, and followed by phytochemical screening. The extract was then formulated into three different concentrations of face mist preparations. Evaluation of physical characteristics included organoleptic test, homogeneity, pH, specific gravity, viscosity, and physical stability. Antioxidant activity was tested using the DPPH method at a wavelength of 516.5 nm to determine percent inhibition and IC_{50} value. All formulas met the physical parameters of face mist preparations. Increasing extract concentration affected organoleptic characteristics in terms of color and caused a decrease in pH value, although still within the safe skin pH range (4.5-8.0). Antioxidant activity increased with higher extract concentration. Formula FIII showed the best result with an IC_{50} value of 150.90 ppm, which falls into the moderate category. Bilimbi fruit extract has potential as an antioxidant active ingredient in natural face mist preparations. Formula FIII demonstrated the best antioxidant activity and fulfilled all physical parameters, indicating its potential for development as a natural antioxidant cosmetic product.*

Keywords: Face mist, Bilimbi fruit, Antioxidant, DPPH, IC_{50}