ABSTRAK

Ekstrak daun mangrove (*Rhizophora mucronata* Poiret) mempunyai kandungan metabolit sekunder berupa senyawa tanin dan flavonoid yang mempunyai aktivitas antioksidan untuk menangkal radikal bebas yang dapat merusak kulit sehingga dapat digunakan sebagai fotoproteksi. Strategi untuk mengurangi radikal bebas pada kulit dapat dilakukan dengan memformulasikan sediaan tabir surya dalam bentuk emulsi ekstrak daun mangrove yang dikombinasikan dengan oksibenzon yang dapat menyerap sinar radiasi UV-A dan UV-B. Kelebihan sediaan emulsi adalah sifatnya yang stabil dan mudah diaplikasikan pada kulit.

Tujuan penelitian ini pertama adalah untuk mengetahui karakteristik fisik sediaan emulsi ekstrak daun mangrove (*Rhizophora mucronata* Poiret) yang meliputi pengamatan tipe emulsi organoleptik, pH, stabilitas serta viskositas. Kedua adalah untuk mengetahui pengaruh penambahan variasi konsentrasi ekstrak (10%,15%,dan 20%) pada uji efektivitas potensi tabir surya yang dinyatakan dalam perhitungan nilai persentase transmisi eritema dan persentase transmisi pigmentasi.

Hasil penelitian menunjukkan bahwa pembuatan emulsi ekstrak daun mangrove (*Rhizophora mucronata* Poiret) kedalam lima konsentrasi berbeda dengan penambahan Tween 80, Span 80, PEG 400, VCO dan Oksibenzon membentuk sediaan emulsi tipe minyak dalam air (M/A) yang stabil selama penyimpanan 6 siklus pada suhu kamar dan suhu dingin. Sediaan ini juga aman digunakan karena tidak menyebabkan iritasi dan kulit bersisik karena pH yang didapat masih dalam kisaran 5-9. Sedangkan nilai kekentalannya masih sangat jauh dari standart SNi karena sediaan yang dibuat memang dalam keadaan cair sehingga mempunyai viskositas yang relatif rendah.

Pada pengujian efektivitas potensi tabir surya, sediaan emulsi mendapatkan hasil sebagai tabir surya yang masuk dalam kategori total proteksi pada penentuan nilai persentase eritema dengan nilai rata-rata pada masing-masing formulasi sebanyak F0 2,68%, F1 4,62%, F2 4,55%, F3 2,15%, F4 3,09% dan masuk kategori sebagai tabir surya total blok (*Sunblock*) pada penentuan nilai transmisi pigmentasi dengan nilai rata-rata pada masing-masing formulasi sebanyak F0 20,78%, F1 29,60%, F2 28,28%, F3 17,12% dan F4 20,21%.

Kesimpulan penelitian ini menujukkan bahwa ekstrak daun mangrove (*Rhizophora mucronata* Poiret) yang diformulasikan kedala, sediaan emulsi stabil secara fisik selama penyimpanan 6 siklus. Mempunyai karakteristik yang sesuai dengan standart dan aktivitas antioksidan dapat berpotensi sebagai tabir surya alami.

Kata Kunci: *Daun mangrove, Karakteristik fisik, Efektivitas potensi tabir surya*

ABSTRACT

Mangrove leaf extract (*Rhizophora mucronata* Poiret) contains secondary metabolites in the form of tannins and flavonoids which have antioxidant activity to ward off free radicals that can damage the skin so that it can be used as photoprotection. The strategy to reduce free radicals on the skin can be done by formulating sunscreen preparations in the form of an emulsion of mangrove leaf extract combined with oxybenzone which can absorb UV-A and UV-B radiation. The advantage of emulsion preparations is that they are stable and easy to apply to the skin.

The purpose of this study was to determine the physical characteristics of the emulsion preparation of mangrove leaf extract (*Rhizophora mucronata* Poiret) which included observing the type of organoleptic emulsion, pH, stability and viscosity. The second is to determine the effect of adding variations in the concentration of extracts (10%, 15%, and 20%) on the effectiveness test of the potential of sunscreen which is expressed in the calculation of the percentage of erythema transmission and percentage of pigmentation transmission.

The results showed that the manufacture of emulsion of mangrove leaf extract (*Rhizophora mucronata* Poiret) into five different concentrations with the addition of Tween 80, Span 80, PEG 400, VCO and Oxybenzone formed an oil-in-water (O/W) emulsion preparation which was stable during 6 cycles of storage. at room temperature and cold. This preparation is also safe to use because it does not cause irritation and scaly skin because the pH obtained is still in the range of 5-9. While the viscosity value is still very far from the SNI standard because the preparation made is in a liquid state so it has a relatively low viscosity.

In testing the effectiveness of potential sunscreens, emulsion preparations obtained results as sunscreens that were included in the category of total protection in determining the percentage value of erythema with an average value in each formulation of F0 2.68%, F1 4.62%, F2 4 ,55%, F3 2.15%, F4 3.09% and included in the category of total sunscreen block (Sunblock) in determining the value of pigmentation transmission with the average value in each formulation as much as F0 20.78%, F1 29 .60%, F2 28.28%, F3 17.12% and F4 20.21%.

The conclusion of this study showed that the extract of mangrove leaves (*Rhizophora mucronata* Poiret) which was formulated into an emulsion preparation was physically stable during 6 cycles of storage. Having characteristics that are in accordance with standards and antioxidant activity can be potential as a natural sunscreen.

Keywords: *Mangrove leaves, Physical characteristics, Potential effectiveness of sunscreen.*