

INTISARI

Penggunaan tabir surya dan antioksidan mampu melindungi kulit dari bahaya sinar ultraviolet (UV). Salah satu sumber antioksidan terdapat di dalam kulit buah pisang, yang juga memiliki aktivitas sebagai tabir surya karena mengandung senyawa flavonoid yang mampu menyerap sinar UV. Penelitian ini bertujuan memanfaatkan limbah kulit buah pisang ambon (*Musa paradisiaca* L.) untuk diformulasikan menjadi sediaan topikal emulgel antiradikal dan tabir surya, serta mengetahui aktivitas antiradikal, potensi tabir surya dan stabilitas fisiknya.

Kulit buah pisang ambon diolah menjadi jus yang kemudian dipekatkan melalui proses *freeze drying*. Hasil *freeze dried* jus kulit buah pisang ambon sebanyak 1% diformulasikan menjadi sediaan topikal emulgel. Emulgel yang dihasilkan dilakukan pengujian aktivitas antioksidan dengan metode penangkapan radikal DPPH (1,1-difenil-2-pikrilhidrazin), pengujian nilai SPF (*Sun Protection Factor*) secara *in vitro*, serta pengujian sifat fisik emulgel meliputi organoleptis, ukuran globul, viskositas, daya lekat, daya sebar, dan pH selama 4 minggu penyimpanan pada suhu ruang (28-30°C). Data hasil pengujian dianalisis secara statistika parametrik maupun non-parametrik dengan taraf kepercayaan 95%.

Freeze dried jus kulit buah pisang ambon mengandung flavonoid sebesar 52,71 µg ekuivalen kuersetin/gram kulit pisang ambon segar dan memiliki nilai IC₅₀ 65,6 µg/mL serta SPF 3,8. Berdasarkan penelitian diperoleh hasil formulasi emulgel *freeze dried* jus kulit buah pisang ambon menurunkan aktivitas antiradikal serta nilai SPF *freeze dried* jus kulit pisang ambon, namun aktivitas antiradikal dan nilai SPF tersebut tidak berubah selama 4 minggu penyimpanan pada suhu ruang. Emulgel yang diformulasikan juga mengalami perubahan sifat fisik selama penyimpanan berupa perubahan warna, peningkatan ukuran globul emulgel 18,5%, peningkatan viskositas 45,9%, peningkatan pH 0,8%, peningkatan daya sebar 2,9%, dan penurunan daya lekat 28,8%. Formula emulgel *freeze dried* jus kulit buah pisang ambon masih diperlukan penelitian lebih lanjut untuk memanfaatkan potensi tabir surya dan antiradikal dari kulit buah pisang ambon.

Kata kunci: kulit buah pisang ambon, emulgel, antiradikal, tabir surya

ABSTRACT

The use of sunscreen and antioxidants can protect our skin from dangerous effects of ultraviolet (UV) light. One of the antioxidant sources is in the banana peel, which also has the activity as a sunscreen because of its flavonoid compounds that can absorb UV rays. This research aims to use ambon banana peels (*Musa paradisiaca* L.) to be formulated into emulgel dosage form as an antiradical and sunscreens, moreover finding out its antiradical activity, sunscreen potency and physical stability.

Banana peels processed into juice and concentrated by freeze drying process. Freeze dried of banana peel juice as much as 1% formulated into emulgel dosage form. The emulgel is tested its antioxidant activity by DPPH (1,1-diphenyl-2-picrylhydrazyl) assay method, determined the Sun Protection Factor (SPF) by *in vitro* method, and physical properties of emulgel tests include the organoleptic, globule size, viscosity, adhesion power, dispersive power, and pH during 4 weeks of storage at room temperature (28-30°C). The collected data is analyzed with parametric and non-parametric statistical tests in 95% confidence interval.

Flavonoid content in freeze dried of banana peel juice is 52.71 µg quercetin equivalent/g fresh ambon banana peel and has IC₅₀ value of antiradical activity 65.6 µg/mL and SPF of 3.8. Results indicate that the emulgel formulation of freeze dried of banana peel juice decreases the activity antiradical and SPF value of freeze dried banana peel juice, but the antiradical activity and the SPF value were not changed during the 4 weeks of storage at room temperature. The physical properties of emulgel formulation were also changed during the storage such as discoloration, increase in globule size up to 18.5%, increase in viscosity up to 45.9%, increase in pH up to 0.8%, increase in dispersive power up to 2.9%, and decrease in adhesion power down to 28.8%. The formula used for emulgel of freeze dried of banana peel juice still needed more research to exploit the potential of sunscreens and antiradical of banana peel.

Keywords: banana peel, emulgel, antiradical, sunscreen