

ABSTRAK

Panu merupakan infeksi kulit yang disebabkan oleh jamur *Malassezia furfur* dan sering menimbulkan rasa gatal. Daun kelor mengandung flavonoid dan tanin yang berpotensi sebagai antijamur. Penelitian ini bertujuan untuk mengetahui pengaruh perbedaan konsentrasi nanopartikel ekstrak daun kelor terhadap aktivitas jamur *M.furfur* serta mengevaluasi sifat fisik dan stabilitas fisik sediaan krimnya.

Penelitian ini berjenis eksperimental murni dengan variasi konsentrasi nanopartikel ekstrak daun kelor yaitu 5%, 10%, dan 15%. Uji aktivitas antijamur selanjutnya dilakukan menggunakan metode *paper disc* dengan pengamatan diameter zona hambat. Data dianalisis menggunakan uji normalitas *Shapiro-Wilk*, *Kruskal-Wallis*, dan dilanjutkan dengan uji *Post-Hoc Man Whitney*. Konsentrasi dengan aktivitas terbaik selanjutnya diformulasikan menjadi sediaan krim dan dilakukan pengujian karakteristik fisik serta stabilitas fisik.

Sediaan nanopartikel konsentrasi 5%, 10%, dan 15% menghasilkan zona hambat berturut-turut sebesar $13,43 \pm 1,42$; $21,56 \pm 0,41$; dan $26,76 \pm 0,49$. Analisis statistik menunjukkan perbedaan yang signifikan antar konsentrasi ($p=0,05$). Konsentrasi 15% memberikan zona hambat terbesar dengan kategori sangat kuat sehingga digunakan dalam formulasi krim.

Hasil uji karakteristik fisik menunjukkan bahwa sediaan krim memiliki karakteristik organoleptis semipadat, berwarna krem, berbau khas kelor, bersifat homogen, pH $6,78 \pm 0,06$, viskositas 6000 ± 0 cPs, daya sebar $5,84 \pm 0,18$ cm, daya lekat $5,60 \pm 0,05$ detik, serta tipe krim minyak dalam air. Selain itu, pada uji stabilitas fisik menunjukkan bahwa selama masa penyimpanan, sediaan krim tidak mengalami perubahan organoleptis dan tetap homogen. Namun, pH krim menunjukkan ketidakstabilan, terjadi peningkatan daya sebar, serta penurunan viskositas dan daya lekat.

Kata Kunci: Daun kelor, nanopartikel, krim, *Malassezia furfur*, stabilitas fisik.

ABSTRACT

Tinea versicolor is a skin infection caused by *Malassezia furfur* and often causes itching. Moringa leaves contain flavonoids and tannins that have potential antifungal activity. This study aims to determine the effect of different concentrations of Moringa leaf extract nanoparticles in cream formulations on inhibiting *M. furfur*, as well as to assess their physical characteristics and physical stability.

This research is a true experimental using variations in nanoparticle concentrations of Moringa leaf extract at 5%, 10%, and 15%. Antifungal activity was evaluated using the paper disc method by measuring the diameter of the inhibition zones. Data were analyzed using the Shapiro-Wilk normality test and the Kruskal-Wallis test, followed by the Mann-Whitney Post-Hoc test. The concentration with the best antifungal activity was then formulated into a cream and evaluated for its physical characteristics and physical stability.

Nanoparticle formulations at concentrations of 5%, 10%, and 15% produced inhibition zones of $13,43 \pm 1,42$; $21,56 \pm 0,41$; and $26,76 \pm 0,49$, respectively. Statistical analysis showed significant differences among the concentrations ($p=0,05$). The 15% concentration produced the largest inhibition zone and was categorized as very strong; therefore, it was selected for cream formulation.

The result of the physical characterization tests showed that the cream formulation had semisolid organoleptic properties, a cream-colored appearance, a characteristic *Moringa oleifera* odor, and good homogeneity, with a pH of $6,78 \pm 0,06$, viscosity of 6000 ± 0 cPs, spreadability of $5,84 \pm 0,18$ cm, and adhesiveness of $5,60 \pm 0,05$ seconds, and an oil-in-water cream type. Furthermore, physical stability test showed that during the storage period, the cream did not undergo any organoleptic changes and remained homogeneous. However, the pH of the cream was unstable, and there was an increase in spreadability as well as a decrease in viscosity and adhesion.

Keywords: Moringa leaf, nanoparticles, cream, *Malassezia furfur*, physical stability.