ABSTRAK

Malassesia furfur merupakan jamur penyebab *pityriasis versicolor*. Pengobatan antijamur sintesis dalam jangka panjang menyebabkan resistensi, sehingga diperlukan pengobatan alternatif dari bahan alam. Daun kelor (*Moringa oleifera* Lam.) mengandung senyawa kuersetin sebagai antijamur dan diformulasikan sebagai serum nanofitosom untuk memperbaiki efektivitasnya. *Xanthan gum* digunakan sebagai *gelling agent* untuk membentuk *gel* yang stabil. Penelitian ini bertujuan untuk mengetahui pengaruh variasi konsentrasi *xanthan gum* terhadap sifat dan stabilitas fisik serum nanofitosom, serta mengetahui aktivitas antijamur sediaan nanofitosom ekstrak daun kelor terhadap *Malassezia furfur*. Ekstrak diperoleh menggunakan metode *ultrasound assisted extraction* (UAE) dengan pelarut etanol 50% (v/v) pada perbandingan 30 mL/g selama 45 menit pada suhu 35°C. Aktivitas antijamur diuji dengan metode difusi cakram. Data zona hambat dianalisis menggunakan uji *Shaphiro-Wilk* dan *Levene's Test*, kemudian dilanjutkan dengan uji *Kruskal-Wallis* dan *Man-Whitney.*

Hasil penelitian menunjukkan bahwa variasi konsentrasi *xanthan gum* berpengaruh terhadap viskositas serum nanofitosom. Variasi konsentrasi *xanthan gum* 0,2%, 0,4%, dan 0,6% menghasilkan viskositas 3, 8, dan 14 d.Pas. Semakin meningkat konsentrasi *xanthan gum*, maka semakin meningkat viskositasnya. Namun, variasi tersebut tidak berpengaruh terhadap stabilitas fisik serum nanofitosom berdasarkan parameter organoleptis, viskositas, dan pH. Keseluruhan formula stabil selama penyimpanan 21 hari pada suhu 8℃. Uji antijamur menunjukkan bahwa sediaan nanofitosom replikasi 1 menghasilkan zona hambat 0,16±0,05 mm dan pada kontrol positif 0,73±0,05 mm, sedangkan kontrol negatif serta sediaan nanofitosom replikasi 2 dan 3 tidak menunjukkan zona hambat. Hasil ini menunjukkan bahwa potensi antijamur ekstrak daun kelor dalam formula serum nanofitosom berbasis *xanthan gum* masih terbatas.

Kata kunci: *Malassezia furfur*, daun kelor, nanofitosom, *xanthan gum*

ABSTRACT

Malassezia furfur was a fungal pathogen responsible for pityriasis versicolor. Long-term use of synthetic antifungal agents had led to resistance, therefore alternative treatments derived from natural materials were required. Moringa (Moringa oleifera Lam.) leaves contained quercetin, which exhibited antifungal activity, and were formulated into a nanophytosome serum to enhance their effectiveness. Xanthan gum was used as a gelling agent to form a stable gel system. This study aimed to determine the effect of varying xanthan gum concentrations on the physical properties and stability of the nanophytosome serum, as well as to evaluate the antifungal activity of the nanophytosome formulation of moringa leaf extract against Malassezia furfur. The extract had been obtained using the ultrasound-assisted extraction (UAE) method with 50% (v/v) ethanol as the solvent at a ratio of 30 mL/g for 45 minutes at 35°C. Antifungal activity was evaluated using the disc diffusion method. The inhibition zone data were analyzed using the Shapiro–Wilk normality test and Levene's test, followed by the Kruskal–Wallis and Mann–Whitney tests.

The results showed that variations in xanthan gum concentration had affected the viscosity of the nanophytosome serum. Xanthan gum concentrations of 0.2%, 0.4%, and 0.6% produced viscosities of 3, 8, and 14 d·Pa·s, respectively. An increase in xanthan gum concentration had resulted in increased viscosity. However, these variations had not affected the physical stability of the nanophytosome serum based on organoleptic properties, viscosity, and pH parameters. All formulations remained stable during 21 days of storage at 8°C. Antifungal testing showed that the nanophytosome formulation in replication 1 produced an inhibition zone of 0.16 ± 0.05 mm, while the positive control produced an inhibition zone of 0.73 ± 0.05 mm. In contrast, the negative control and nanophytosome formulations in replications 2 and 3 showed no inhibition zones. These findings indicated that the antifungal potential of moringa leaf extract in a xanthan gum-based nanophytosome serum formulation remained limited.

Keywords: *Malassezia furfur*, *Moringa oleifera*, *nanophytosome, xanthan gum*