

## ABSTRAK

Daun binahong (*Anredera cordifolia*) memiliki berbagai kandungan fitokimia didalamnya seperti alkaloid, tanin, triterpenoid, saponin, flavonoid, quinon, steroid, monoterpenoid, dan sesquiterpenoid. Senyawa flavonoid yang berada didalamnya mengandung vitexin yang memiliki efek farmakologi sebagai pengobatan kanker payudara. Vitexin dapat menginduksi apoptosis sel dan menghambat proliferasi sel melalui perpanjangan penghentian siklus sel G2. Vitexin memiliki kelarutan yang rendah di air, sehingga digunakan teknologi transfersom untuk mengatasinya. Pada penelitian ini, ekstrak daun binahong (*Anredera cordifolia*) dibuat dalam sediaan gel transfersom dengan penambahan gliserol sebagai enhancer. Gliserol sebagai enhancer dapat menghidrasi stratum korneum dan meningkatkan kelarutan obat sehingga dapat meningkatkan penetrasi obat melalui kulit. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh peningkatan konsentrasi gliserol sebagai permeation enhancer terhadap peningkatan laju dan jumlah penetrasi vitexin pada sediaan gel transfersom ekstrak daun binahong (*Anredera cordifolia*). Dilakukan variasi konsentrasi lima formula berbeda untuk melihat pengaruh penggunaan gliserol sebagai enhancer. Kemudian studi penetrasi obat dilakukan menggunakan metode ILC *Automated Diffusion System* dengan analisis menggunakan *High Performance Liquid Chromatography* (HPLC). Kadar vitexin yang berpenetrasi dijelaskan melalui jumlah kumulatif dan nilai fluks. Dilakukan uji normalitas menggunakan *Shapiro-Wilk*, uji homogenitas menggunakan uji *Levene test*, dan uji *Kruskal-Wallis* dengan taraf kepercayaan 95% serta uji *Pairwise comparison of Formula* apabila hasil menunjukkan perbedaan signifikan. Hasil analisis menunjukkan tidak terdapat perbedaan signifikan pada jumlah kumulatif vitexin yang terpenetrasi, dengan nilai signifikansi 0,272. Penambahan gliserol pada konsentrasi 2,5%, 5%, dan 7,5% tidak menunjukkan perbedaan signifikan dibandingkan kontrol negatif formula II.

Kata kunci : vitexin, gliserol, enhancer, *automated diffusion system*, HPLC

### ABSTRACT

*Binahong leaves (Anredera cordifolia) contain various phytochemical compounds such as alkaloids, tannins, triterpenoids, saponins, flavonoids, quinones, steroids, monoterpenoids, and sesquiterpenoids. The flavonoid compounds in binahong leaves include vitexin, which has pharmacological effects for breast cancer treatment. Vitexin can induce cell apoptosis and inhibit cell proliferation by extending G2 cell cycle arrest. Vitexin has low water solubility, which necessitates the use of transfersome technology to overcome this limitation. In this study, binahong leaf extract (Anredera cordifolia) was formulated into a transfersome gel preparation with the addition of glycerol as a permeation enhancer. Glycerol acts as an enhancer by hydrating the stratum corneum and improving drug solubility, thereby enhancing drug penetration through the skin. The purpose of this study was to determine the effect of increasing glycerol concentrations as a permeation enhancer on the penetration rate and amount of vitexin in the transfersome gel formulation of binahong leaf extract (Anredera cordifolia). Five different formulas with varying glycerol concentrations were prepared to investigate its effect as an enhancer. Drug penetration studies were conducted using the ILC Automated Diffusion System method and analyzed by High-Performance Liquid Chromatography (HPLC). The amount of penetrated vitexin was described through cumulative amounts and flux values. Normality testing was performed using the Shapiro-Wilk test, homogeneity testing using Levene's test, and statistical analysis using the Kruskal-Wallis test with a 95% confidence level, followed by pairwise comparison of formulas if significant differences were found. The analysis results showed no significant differences in the cumulative amount of penetrated vitexin, with a significance value of 0.307. The addition of glycerol at concentrations of 2.5%, 5%, and 7.5% did not show significant differences compared to the negative control in Formula II.*

**Keywords :** vitexin, glycerol, enhancer, automated diffusion system, HPLC