

ABSTRAK

Diabetes melitus merupakan salah satu penyakit metabolik dengan jumlah kasus yang cukup tinggi di Indonesia. Ulkus diabetes yang tidak ditangani akan berkembang menjadi infeksi. Salah satu sediaan topikal yaitu gel. Gel merupakan sediaan semipadat yang memiliki kelebihan berupa *cooling sensation*, mudah diaplikasikan, dan tidak lengket pada kulit. Vitexin pada daun binahong akan mencegah ulkus agar tidak berkembang menjadi lebih parah dengan mengaktifkan Nrf2 dan menghambat TNF alpha pada lapisan dermis. Transfersom diperlukan untuk melindungi obat agar dapat mencapai lapisan dermis dikarenakan vitexin mudah terdegradasi pada pH luka yang basa.

Penelitian ini bertujuan untuk mengetahui aktivitas gel transfersom ekstrak daun binahong terhadap kecepatan penutupan luka diabetes. Penelitian ini termasuk jenis penelitian eksperimental murni yang telah mendapatkan *ethical clearance* dengan variabel bebas berupa variasi konsentrasi ekstrak daun binahong pada sediaan dan variabel tergantung berupa persentase penutupan luka diabetes. Tikus sebanyak 24 ekor akan diinduksi dengan streptozotocin dan kadar gula darah diukur dengan metode GOD-PAP. Tikus yang telah mengalami diabetes akan diberi luka dengan *punch* biopsi 5 mm. Sediaan akan diaplikasikan sebanyak 2 kali sehari dan diamati penutupan lukanya selama 21 hari. Hasil data berupa diameter penutupan luka akan dianalisis dengan *Macbiophotonic Image J* dan uji normalitas data dianalisis dengan SPSS.

Pengujian sediaan gel transfersom ekstrak binahong memberikan hasil dimana konsentrasi 20% memiliki hasil persentase penutupan luka yang paling efektif. Berdasarkan analisis statistik sediaan gel transfersom ekstrak daun binahong didapatkan *p-value* <0,05 yang memiliki arti bahwa sediaan efektif mempercepat penutupan luka diabetes.

Kata Kunci: Luka diabetes, transfersom, binahong, vitexin, gel

ABSTRACT

Diabetes mellitus is one of the metabolic diseases with a fairly high number of cases in Indonesia. Untreated diabetic ulcers will develop into an infection. One of the topical preparations is gel. Gel is a semi-solid preparation that has the advantage of cooling sensation, easy to apply, and not sticky to the skin. Vitexin in binahong leaves will prevent ulcers from developing more severely by activating Nrf2 and inhibiting TNF alpha in the dermis. Transfersoms are needed to protect the drug in order to reach the dermis layer because vitexin is easily degraded at an alkaline wound pH.

This study aims to determine the activity of the transfersome gel of binahong leaf extract on the speed of closing diabetic wounds. This study is a type of purely experimental research that has obtained ethical clearance with independent variables in the form of variations in the concentration of binahong leaf extract in the preparation and dependent variables in the form of the percentage of diabetic wound closure. As many as 24 mice will be induced with streptozotocin and blood sugar levels will be measured by the GOD-PAP method. Rats that have developed diabetes will be given wounds with a 5 mm biopsy punch. The preparation will be applied 2 times a day and the wound closure will be observed for 21 days. The data results in the form of wound closure diameter will be analyzed with Macbiophotonic Image J and the data normality test will be analyzed with SPSS.

Testing of binahong extract transfersome gel preparations gave results where a concentration of 20% had the most effective wound closure percentage. Based on statistical analysis of the transfersome gel preparation of binahong leaf extract, a p-value of <0.05 was obtained, which means that the preparation is effective in accelerating the closure of diabetic wounds.

Keywords: *Diabetic wounds, transfersom, binahong, vitexin, gel*