

ABSTRAK

Muzuka, M. Okta Dody. 2016. *Uji Antioksidan Etosom Ekstrak Daun Jeruk Purut (Citrus hystrix D.C) Sebagai Anti Penuaan Kulit Dengan Metode DPPH*. Tugas Akhir, Program Studi Farmasi, Fakultas Kedokteran, Universitas Brawijaya. Pembimbing: (1) Adeltrudis Adelsa D., S.Farm, M.Farm.Klin., Apt., (2) Dra. S. J. Iswarin, M.Si., Apt.

Proses utama yang berperan dalam menyebabkan penuaan kulit dapat dibagi menjadi dua, yaitu intrinsik dan ekstrinsik. Ekstrak daun jeruk purut mengandung senyawa alkaloid, flavonoid, terpenoid, dan fenol yang memiliki aktivitas antioksidan. Etosom adalah sistem penghantaran obat yang terdiri dari fosfolipid, etanol dan air sebagai pelarut bebas. Metode yang digunakan untuk menentukan aktivitas antioksidan adalah α -diphenyl- β -picrylhydrazyl (DPPH). Formula etosom dibuat dengan tiga perbedaan konsentrasi fosfolipid soya lesitin, yaitu formula 1 sebesar 1,5%; formula 2 sebesar 2,5% dan formula 3 sebesar 3,0%. Etosom daun jeruk purut diuji organoleptik, skrining fitokimia, pH, ukuran vesikel, morfologi, nilai antioksidan dan stabilitas. Rendemen ekstrak diperoleh sebesar 9,85% dengan pelarut etanol 96% dan mengandung fenol, terpenoid, flavonoid dan alkaloid pada uji skrining fitokimia. Uji stabilitas *real time* dilakukan hari ke-0, ke-15, dan ke-30 pada suhu $25,0^{\circ}\text{C} \pm 2,0^{\circ}\text{C}$ dengan *relative humidity* $60,0\% \pm 5,0\%$ stabil selama penyimpanan. Uji pH etosom memenuhi spesifikasi pH kulit yaitu 4,5-6,6. Ukuran vesikel tidak sesuai spesifikasi 50-200 nm, karena memiliki ukuran formula 1 sebesar $17,086 \pm 28,491 \mu\text{m}$, formula 2 sebesar $52,872 \pm 42,553 \mu\text{m}$ dan formula 3 sebesar $27,489 \pm 38,634 \mu\text{m}$. Uji antioksidan etosom ekstrak daun jeruk purut memiliki nilai IC 50 formula 1 sebesar $28,814 \pm 0,431 \text{ ppm}$, formula 2 sebesar $32,299 \pm 1,893 \text{ ppm}$ dan formula 3 sebesar $30,234 \pm 0,531 \text{ ppm}$. Berdasarkan hasil penelitian tersebut dapat disimpulkan bahwa ekstrak daun jeruk purut berpotensi sebagai antioksidan yang sangat kuat.

Kata kunci: antioksidan, *Citrus hystrix* D. C., etosom, penuaan.

ABSTRACT

Muzuka, M. Okta Dody. 2016. *Antioxidant Test of Ethosome Kaffir Lime Leaves (Citrus hystrix D.C.) Extract as Skin Anti-Aging with DPPH Method*. Final Assignment, Pharmacy Program, Faculty of Medicine, Universitas Brawijaya. Supervisors: (1) Adeltrudis Adelsa D., S.Farm, M.Farm.Klin., Apt., (2) Dra. S. J. Iswarin, M.Si., Apt.

The main process that play role in causing skin aging can be divided into intrinsic and extrinsic. Kaffir lime leaf extract contains alkaloids, flavonoids, terpenoids and phenols which have antioxidant activity. Ethosome is a drug delivery system which composed of phospholipid, ethanol, and water as solvent. The presence of ethanol can lower the transition of lipid stratum corneum temperature and increase fluidity. The method to determine antioxidant activity as anti-aging in this research was α -diphenyl- β -picrylhydrazyl (DPPH). The formula of ethosome was made with three different lecithin soya Phospholipid concentrations which were 1.5% of 1st formula; 2.5% of 2nd formula and 3.0% of 3rd formula. Kaffir lime leaves' ethosome were evaluated by organoleptic test, phytochemical screening, pH test, vesicle size test, morphologic test, antioxidant value test and stability test. The result yield and extract acquired for 9.85% with solvent ethanol 96% and contain phenol, terpenoids, alkaloids and flavonoids in the test screening phytochemicals. Real time stability test conducted day 0, the 15th, and 30th at a temperature of $25,0^{\circ}\text{C} \pm 2,0^{\circ}\text{C}$ with relative humidity $60.0\% \pm 5.0\%$ stable during storage. Test pH ethosome pH skin specification 4.5-6.6. The size of the vesicles does not fit the specifications of 50-200 nm, because it has a size of formula 1 of $17.086 \pm 2 \mu\text{m}$ 28.491, formula 2 of $52.872 \pm 42.553 \mu\text{m}$ and formula 3 of $38.634 \mu\text{m} \pm 27.489$. Antioxidant test ethosome leaf extract Kaffir lime has a value of IC 50 of formula 1 of $28.814 \pm 2 \text{ ppm}$, 0.431 formula of $32.299 \pm 1.893 \text{ ppm}$ and formula 3 of $30.234 \pm 0.531 \text{ ppm}$. Based on the results of the study it can be concluded that the extract of leaves of the Kaffir lime is potentially a very powerful as antioxidants.

Keywords: antiaging, antioxidant, *Citrus hystrix* D. C., ethosome.