

## ABSTRAK

INDAH WULANDARI, 2023, PENGARUH VARIASI KONSENTRASI CARBOPOL 940 TERHADAP MUTU FISIK DAN STABILITAS EMULGEL MINYAK ATSIRI DAUN NILAM (*Pogostemon cablin benth.*), KARYA TULIS ILMIAH, PROGRAM STUDI D-III FARMASI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI. Dibimbing oleh apt. Siti Aisyah, S.Farm., M.Sc.

Emulgel merupakan salah satu sediaan topikal berbentuk gel dengan cairan berbentuk emulsi untuk menghantarkan minyak atsiri daun nilam sebagai zat aktif dalam sediaan agar tidak berminyak saat diaplikasikan pada kulit. Carbopol 940 merupakan salah satu *gelling agent* dalam pembuatan emulgel yang memiliki stabilitas yang tinggi sehingga memberikan karakteristik gel menjadi jernih. Tujuan penelitian ini adalah untuk mengetahui pengaruh variasi konsentrasi carbopol 940 terhadap mutu fisik dan stabilitas emulgel minyak atsiri daun nilam serta untuk mengetahui konsentrasi carbopol 940 yang dapat menghasilkan emulgel minyak atsiri daun nilam dengan mutu fisik dan stabilitas yang paling baik.

Minyak atsiri daun nilam diformulasikan dalam sediaan emulgel dengan konsentrasi carbopol 940 1%, 2%, dan 3%. Sediaan emulgel minyak atsiri daun nilam dilakukan pengujian mutu fisik meliputi uji organoleptis, homogenitas, pH, viskositas, daya lekat, daya sebar, daya proteksi, tipe emulsi, dan uji stabilitas dengan metode *cycling test* selama 6 siklus. Data dianalisis dengan membandingkan hasil dengan beberapa literatur dan pendekatan statistika menggunakan program SPSS.

Peningkatan konsentrasi carbopol 940 berpengaruh pada peningkatan konsistensi, viskositas, dan daya lekat emulgel, tetapi menurunkan pH, daya sebar, dan daya proteksi emulgel. Sediaan emulgel minyak atsiri daun nilam dengan konsentrasi carbopol 940 1% menghasilkan mutu fisik yang paling baik dan semua formula stabil pada pengujian organoleptis, homogenitas, dan tipe emulsi dengan metode *cycling test*.

Kata kunci : minyak atsiri daun nilam, emulgel, carbopol 940, uji mutu fisik

## ABSTRACT

INDAH WULANDARI, 2023, THE EFFECT OF CARBOPOL 940 CONCENTRATION VARIATION ON THE PHYSICAL QUALITY AND STABILITY OF PATCHOULI LEAF ESSENTIAL OIL EMULGEL (*Pogostemon cablin benth.*), SCIENTIFIC PAPERS, THREE YEAR DIPLOMA IN PHARMACY, FACULTY OF PHARMACY, SETIA BUDI UNIVERSITY, SURAKARTA. Supervised by apt. Siti Aisyah, S.Farm., M.Sc.

Emulgel is a topical preparation in the form of a gel with liquid in the form of an emulsion to deliver patchouli leaf essential oil as an active substance in the preparation so that it is not greasy when applied to the skin. Carbopol 940 is one of the gelling agents in the manufacture of emulgels which has high stability so that it gives clear gel characteristics. The purpose of this study was to determine the effect of variations in carbopol 940 concentrations on the physical quality and stability of patchouli leaf essential oil emulgels and to determine the concentration of carbopol 940 which can produce patchouli leaf essential oil emulgel with the best physical quality and stability.

Patchouli leaf essential oil is formulated in emulgel preparations with carbopol 940 concentrations of 1%, 2% and 3%. The emulgel preparations of patchouli leaf essential oil were tested for physical quality including organoleptic test, homogeneity, pH, viscosity, adhesion, spreadability, protection power, emulsion type, and stability test with the cycling test method for 6 cycles. Data were analyzed by comparing the results with some literature and statistical software using the SPSS program.

Increasing the concentration of carbopol 940 had an effect on increasing the consistency, viscosity, and adhesiveness of the emulgel, but decreased the pH, spreadability, and protective power of the emulgel. Emulgel preparations of patchouli leaf essential oil with a carbopol concentration of 940 1% produced the best physical quality and all formulas were stable in organoleptic, homogeneity, and emulsion type tests using the cycling test method.

Key words : patchouli leaf essential oil, emulgel, carbopol 940, physical quality test