

ABSTRAK

NICA AYU AMELIA, 2024, PENGARUH VARIASI KONSENTRASI CARBOPOL 940 TERHADAP MUTU FISIK DAN STABILITAS SEDIAAN EMULGEL MINYAK ATSIRI BUNGA KENANGA (*Cananga odorata*), KARYA TULIS ILMIAH, PROGRAM STUDI D-III FARMASI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI SURAKARTA. Dibimbing oleh apt. Siti Aisiyah, S. Farm., M.Sc.

Sediaan emulgel mampu memfasilitasi penghantaran senyawa yang bersifat hidrofob seperti minyak atsiri bunga kenanga, karena emulgel merupakan sistem 2 fase minyak dan air. Emulgel dibuat dengan mencampurkan *gelling agent* dan emulsi dengan proporsi tertentu. Penelitian ini menggunakan *gelling agent* berupa carbopol 940, yang memiliki peran sangat berpengaruh terhadap sifat fisik dan karakteristik sediaan emulgel. Tujuan penelitian ini adalah untuk mengetahui variasi pada konsentrasi carbopol 940 sediaan emulgel minyak atsiri bunga kenanga dapat mempengaruhi mutu fisik dan stabilitas yang baik.

Minyak atsiri yang akan digunakan pada formulasi ini dilakukan pengujian organoleptis, indeks bias, kelarutan dalam etanol, bobot jenis, dan Kromatografi Lapis Tipis (KLT). Emulgel minyak atsiri bunga kenanga dibuat dalam 3 formula dengan variasi konsentrasi carbopol 940, 1%, 1.5%, dan 2%. Sediaan emulgel dari setiap formula diuji mutu fisik meliputi organoleptis, homogenitas, pH, viskositas, daya sebar, daya lekat, dan uji stabilitas dengan metode *cycling test*. Hasil pengujian mutu fisik dan stabilitas dilakukan analisis menggunakan aplikasi SPSS (*Statistical Package for the Social Sciences*).

Hasil uji mutu fisik sediaan emulgel dengan variasi konsentrasi carbopol 940 dengan penambahan minyak atsiri bunga kenanga menunjukkan bahwa dengan memvariasi carbopol 940 akan mempengaruhi viskositas, daya sebar dan daya lekat. Semakin tinggi nilai viskositas yang diperoleh, semakin rendah daya sebar yang dihasilkan sedangkan daya lekat berbanding lurus dengan viskositas. Berdasarkan hasil pengujian pada tiap formulasi menunjukkan bahwa formulasi kedua dengan konsentrasi carbopol 940 (1.5%) memberikan hasil uji mutu fisik yang baik. Namun, pada ketiga formula dengan variasi konsentrasi carbopol 940 1%, 1.5%, dan 2% memberikan hasil yang tidak stabil pada tiap formula. Hal ini dipengaruhi parameter pengujian viskositas, daya lekat, dan daya sebar.

Kata kunci : emulgel, minyak atsiri, carbopol, uji mutu fisik.

ABSTRACT

NICA AYU AMELIA, 2024, THE EFFECT OF VARIATIONS IN CARBOPOL 940 CONCENTRATION ON THE PHYSICAL QUALITY AND STABILITY OF EMULGEL PREPARATIONS OF YANTA FLOWER (*Cananga odorata*) ESSENTIAL OIL, SCIENTIFIC WRITING, D-III PHARMACY STUDY PROGRAM, FACULTY OF PHARMACY, SETIA BUDI UNIVERSITY, SURAKARTA . Supervised by apt. Siti Aisiyah, S. Farm., M.Sc.

Emulgel preparations are able to facilitate the delivery of hydrophobic compounds such as ylang-ylang essential oil, because emulgel is a 2-phase system of oil and water. Emulgel is made by mixing gelling agent and emulsion in certain proportions. This research uses a gelling agent in the form of carbopol 940, which has a very influential role in the physical properties and characteristics of emulgel preparations. The aim of this research was to determine whether variations in the concentration of carbopol 940 in the emulgel preparation of ylang-ylang flower essential oil could affect its physical quality and good stability.

The essential oils that will be used in this formulation are tested for organoleptic, refractive index, solubility in ethanol, specific gravity, and Thin Layer Chromatography (TLC). Ylang ylang essential oil emulsion is made in 3 formulas with varying carbopol concentrations of 940, 1%, 1.5%, and 2%. Emulgel preparations from each formula were tested for physical quality including organoleptic, homogeneity, pH, viscosity, spreadability, stickiness, and stability testing using the cycling test method. The results of physical quality and stability testing were analyzed using the SPSS (Statistical Package for the Social Sciences) application.

The results of the physical quality test of emulgel preparations with varying concentrations of carbopol 940 with the addition of ylang-ylang flower essential oil showed that varying carbopol 940 would affect viscosity, spreadability and adhesion. The higher the viscosity value obtained, the lower the spreading power produced, while the sticking power is directly proportional to viscosity. Based on the test results for each formulation, it shows that the second formulation with a carbopol concentration of 940 (1.5%) provides good physical quality test results. However, the three formulas with varying concentrations of carbopol 940 1%, 1.5% and 2% gave unstable results in each formula. This is influenced by the test parameters of viscosity, adhesion and spreadability.

Key words : emulgel, essential oil, carbopol, physical quality test.