FORMULASI DAN STABILITAS *PATCH* TRANSDERMAL EKSTRAK ETANOL DAUN TEH (*Camellia sinensis*) DENGAN VARIASI KONSENTRASI POLIMER HPMC DAN ETIL SELULOSA

Nabilla Zahrah Rahmawati

Abstrak

Patch transdermal kini banyak diminati karena memberikan pelepasan obat yang terkendali dan dapat menutupi jerawat meradang. Namun, penggunaan polimer tunggal, baik hidrofilik maupun hidrofobik menghasilkan karakteristik fisik yang belum sesuai dengan kriteria yang ditentukan. Tujuan dari penelitian ini adalah mengembangkan formulasi *patch* transdermal dengan mengombinasikan polimer HPMC dan etil selulosa guna memperbaiki karakteristik serta meningkatkan kestabilan fisik dan kimia sediaan. Metode yang digunakan yaitu melakukan pengujian stabilitas dipercepat dilakukan selama tiga bulan pada formulasi yang telah dibuat, dengan suhu pengujian 40°C, kelembapan relatif (RH) 75%. Parameter yang diamati meliputi parameter fisik (organoleptik, homogenitas, ketebalan, %kelembapan, dan ketahanan lipat) serta parameter kimia (pH dan kadar katekin). Hasil menunjukkan bahwa kadar katekin dalam sediaan lebih rendah dibandingkan ekstrak murni (67,8957 mg/g), diduga akibat proses formulasi. Formulasi F1 (HPMC 1% dan etil selulosa 2%) menunjukkan penurunan stabilitas fisik dan kimia paling rendah. Berdasarkan hasil uji statistik, parameter ketebalan, kelembapan, pH, dan kadar katekin memiliki nilai $p > 0,05$. Hal ini menunjukkan bahwa sediaan stabil selama penyimpanan tiga bulan.

Kata Kunci: Daun teh, *Patch* Transdermal, HPMC, Etil selulosa, Stabilitas dipercepat

FORMULATION AND STABILITY OF TRANSDERMAL PATCH FROM ETHANOL EXTRACT OF TEA LEAVES (Camellia sinensis) WITH VARIATIONS IN HPMC AND ETHYL CELLULOSE POLYMER CONCENTRATIONS

Nabilla Zahrah Rahmawati

Abstract

Transdermal patches are currently in great demand because they can control drug release and cover inflammatory acne. However, the use of hydrophilic or hydrophobic homopolymers produces physical properties that do not meet existing criteria. This study aims to develop a transdermal patch formulation by combining two types of polymers to improve the properties and stability of the formulation in terms of physical and chemical properties. The method used was to conduct an accelerated stability test for 3 months on the formulation prepared at a temperature of 40°C and a relative humidity of 75%. The parameters observed included physical parameters (sensitivity, uniformity, thickness, water absorption, and folding resistance) and chemical parameters (pH and catechin concentration). As a result, the catechin content of the formulation was lower than the pure extract (67.8957 mg/g), which may be due to the formulation process. Formulation F1 (1% HPMC and 2% ethyl cellulose) showed the least decrease in physical and chemical stability. Based on statistical test results, the parameters of thickness, water content, pH, and catechin content had a p-value > 0.05. This indicates that the preparation is stable during three months of storage.

Keywords: Tea leaves, Transdermal Patch, HPMC, Ethyl cellulose, Accelerated stability