PENGARUH CARA PENYIMPANAN TERHADAP STABILITAS ASAM KOJIK DALAM PRODUK *SKINCARE WHITENING* SEDIAAN GEL DAN KRIM

Nashwa Putri Fajria
Program Studi Sarjana Farmasi
Institut Kesehatan Mitra Bunda

Dosen Pembimbing
Ghalib Syukrillah Syahputra
Dhia Suhailah

ABSTRAK

Asam kojik merupakan senyawa yang populer digunakan sebagai bahan aktif pemutih kulit. Asam kojik tidak stabil terhadap cahaya, panas, dan memiliki rentang pH yang sempit. Penelitian ini bertujuan untuk mengukur laju degradasi kadar asam kojik dalam sediaan gel dan krim di bawah kondisi penyimpanan yang secara tidak langsung meniru kebiasaan konsumen sehari-hari (variasi suhu dan paparan cahaya). Sediaan krim dan gel asam kojik dari masing-masing 3 *batch* yang berbeda di simpan dalam empat variasi cara penyimpanan suhu 3-5°C (suhu lemari es), suhu ruang 25-30°C (terkena paparan sinar matahari), suhu ruang 25-30°C (terlindung dari sinar matahari), dan penyimpanan pada suhu ≥40°C (terkena paparan sinar matahari) dengan waktu simpan selama 30 hari. Sediaan diukur kadarnya dengan alat spektrofotometri UV-Vis, data dianalisis menggunakan *Two-Way ANOVA*. Kadar awal sampel adalah 1,59% (krim) dan 1,54% (gel). Setelah penyimpanan 30 hari, tingkat degradasi terendah terjadi pada suhu dingin (krim 1,55%; gel 1,56%), suhu ruang terlindung cahaya (krim 1,43%; gel 1,55%). Suhu ruang terpapar cahaya (krim 1,31%; gel 1,10%). Degradasi terparah terjadi pada suhu ≥ 40°C (krim 0,91% dan gel tersisa 0,77%).

Kata Kunci: asam kojik, stabilitas, cara penyimpanan, spektrofotometri UV-Vis

THE EFFECT OF STORAGE CONDITIONS ON THE STABILITY OF KOJIC ACID IN WHITENING SKINCARE GEL AND CREAM FORMULATIONS

Nashwa Putri Fajria
Bachelor of Pharmacy Study Program
Mitra Bunda Health Institute

Academic Supervisors
Ghalib Syukrillah Syahputra
Dhia Suhailah

ABSTRACT

Kojic acid is a popular compound used as an active skin-whitening agent. Kojic acid is unstable under light, heat, and has a narrow pH range. This study aimed to measure the degradation rate of kojic acid levels in gel and cream formulations under storage conditions that indirectly simulate everyday consumer habits. Cream and gel containing kojic acid from 3 different batches each were stored under four storage conditions: cold temperature at 3–5°C (refrigerator), room temperature at 25–30°C (exposed to sunlight), room temperature at 25–30°C (protected from sunlight), and temperature at ≥40°C (exposed to sunlight) for a storage duration of 30 days. The concentration of the formulations was measured using UV-Vis spectrophotometry, and the data were analyzed using Two-Way ANOVA. The initial concentrations of the samples were 1.59% (cream) and 1.54% (gel). After 30 days of storage, the lowest degradation rate occurred under cold storage (cream 1.55%; gel 1.56%) and room temperature protected from light (cream 1.43%; gel 1.55%). Room temperature exposed to light resulted in reduced concentrations (cream 1.31%; gel 1.10%). The most severe degradation occurred at temperatures ≥ 40°C (cream remaining at 0.91% and gel at 0.77%)

*Keywords**:** kojic acid, stability, storage conditions, UV-Vis spectrophotometry*