PENGARUH CARA PENYIMPANAN TERHADAP STABILITAS TRETINOIN DALAM PRODUK KOMERSIAL RETICOR CREAM 0,025% DAN VITACID CREAM 0,025%

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ABSTRAK

Tretinoin adalah standar emas untuk pengobatan jerawat dan penuaan dini, namun sangat sensitif terhadap panas dan cahaya. Penelitian ini bertujuan menganalisis pengaruh cara penyimpanan terhadap stabilitas Tretinoin dalam produk komersial Reticor Cream 0,025% dan Vitacid Cream 0,025%. Penelitian eksperimental laboratorium ini menggunakan 4 kondisi penyimpanan: lemari es (2-5°C), suhu ruang terpapar cahaya matahari (20-30°C), suhu ruang terlindung cahaya matahari (20-30°C), dan suhu panas (40-50°C) selama 28 hari, dengan pengukuran kadar pada hari ke-0, 14, dan 28 menggunakan spektrofotometri UV-Vis. Metode divalidasi dengan uji linearitas, LOD, LOQ, akurasi, dan presisi. Analisis data menggunakan uji nonparametrik Mann-Whitney, Kruskal-Wallis, dan Friedman. Hasil penelitian menunjukkan cara penyimpanan berpengaruh signifikan terhadap stabilitas Tretinoin ($p = 0,002$). Kondisi terbaik adalah suhu ruang terlindung cahaya (75,72% Reticor; 69,33% Vitacid), sedangkan kondisi terburuk adalah suhu panas (17,92% Reticor; 14,78% Vitacid). Penyimpanan lemari es (52,82% Reticor; 47,35% Vitacid) dan suhu ruang terpapar cahaya (58,40% Reticor; 52,83% Vitacid) juga menurunkan kadar secara signifikan. Kadar menurun seiring waktu ($p < 0,001$) dengan penurunan paling drastis pada suhu panas. Tidak terdapat perbedaan signifikan antara stabilitas Reticor dan Vitacid ($p = 0,888$). Disimpulkan bahwa cara penyimpanan yang tepat adalah suhu ruang terlindung cahaya untuk menjaga stabilitas Tretinoin.

Kata Kunci: Tretinoin, stabilitas, cara penyimpanan, krim, spektrofotometri UV-Vis

THE EFFECT OF STORAGE METHOD ON THE STABILITY OF TRETINOIN IN COMMERCIAL PRODUCTS RETICOR CREAM 0.025% AND VITACID CREAM 0.025%

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ABSTRACT

Tretinoin is the gold standard for the treatment of acne and photoaging, but it is highly sensitive to heat and light. This study aimed to analyze the effect of storage conditions on the stability of Tretinoin in commercial products Reticor Cream 0.025% and Vitacid Cream 0.025%. This laboratory experimental study used 4 storage conditions: refrigerator (2-5°C), room temperature exposed to light (20-30°C), room temperature protected from light (20-30°C), and heat (40-50°C) for 28 days, with concentration measurements on days 0, 14, and 28 using UV-Vis spectrophotometry. The method was validated by linearity, LOD, LOQ, accuracy, and precision tests. Data were analyzed using nonparametric Mann-Whitney, Kruskal-Wallis, and Friedman tests. The results showed that storage conditions significantly affected Tretinoin stability ($p = 0.002$). The best condition was room temperature protected from light (75.72% Reticor; 69.33% Vitacid), while the worst condition was heat (17.92% Reticor; 14.78% Vitacid). Refrigerator storage (52.82% Reticor; 47.35% Vitacid) and room temperature exposed to light (58.40% Reticor; 52.83% Vitacid) also significantly reduced concentrations. Tretinoin levels decreased over time ($p < 0.001$) with the most drastic decrease in heat. There was no significant difference between the stability of Reticor and Vitacid ($p = 0.888$). It was concluded that the proper storage condition is room temperature protected from light to maintain Tretinoin stability.

Keyword: *Tretinoin, stability, storage conditions, cream, UV-Vis spectrophotometry*