

INTISARI

Telah dilakukan optimasi dan validasi metode analisis hidrokinon dan asam retinoat pada sediaan kosmetik krim pemutih kulit secara simultan menggunakan KCKT. Optimasi terhadap metode analisis menghasilkan fase gerak berupa metanol : air : asam asetat glasial = 88 : 12 : 0,4 v/v/v dan laju alir 1,2 mL/menit. Fase diam purospher® STAR LP RP-18 *endcapped* (250 x 4,6 mm, 5 µm) dan suhu oven kolom 45°C. Detektor yang digunakan adalah PDA pada panjang gelombang 310 nm. Metode divalidasi dengan parameter selektivitas, linieritas, ketepatan, ketelitian, batas deteksi, batas kuantitasi, dan uji ketahanan. Hasil validasi menunjukkan bahwa metode analisis ini selektif, mempunyai linieritas, ketelitian, dan ketepatan yang baik ($r \geq 0,9998$, persen RSD *inter-day* $\leq 3,44\%$, persen *recovery* hidrokinon dan asam retinoat masing-masing sebesar 100% dan 99,67%). Batas deteksi hidrokinon dan asam retinoat masing-masing sebesar 0,44 dan 0,47 µg/g sampel serta batas kuantitasi hidrokinon dan asam retinoat masing-masing sebesar 5,09 dan 1,71 µg/g sampel.

Kata kunci : KCKT, hidrokinon, asam retinoat, kosmetik, simultan, optimasi.

ABSTRACT

Researches had been conducted on the optimization and validation of high performance liquid chromatography (HPLC) method for simultaneous determination of hydroquinone and retinoic acid in a skin bleaching cream cosmetics. Optimization analytical method was done, and the optimal mobile phase was consisted of metanol : water : glacial acetic acid = 88 : 12 : 0.4 v/v/v, and flow rate of 1.2 mL/minutes. The column was STAR LP Purospher® stationary phase RP-18 endcapped (250 x 4.6 mm, 5 µm) and the column-oven temperature of 45 °C. Detection was performed under PDA (Photo Diode Array) detector at a wavelength of 310 nm. The method was validated with the parameters of selectivity, linearity, accuracy, precision, detection limit, quantitation limit, and the endurance test/robustness. The validation results showed that the analytical method was selective, linear, precise, and accurate ($r \geq 0.9998$, percent of inter-day RSD $\leq 3.44\%$, and the percent recovery of hydroquinone and retinoic acid of 100,00% and 99.67% respectively) with detection limits of hydroquinone and retinoic acid of 0.44 and 0.47 mg/g sample respectively and the limit of quantitation hydroquinone and retinoic acid of 5.09 and 1.71 mg/g samples respectively.

Keywords: HPLC, hydroquinone, retinoic acid, cosmetics, simultaneously, optimization.