ABSTRAK

Klorokuin adalah aminokuinolin yang dapat digunakan untuk pengobatan malaria, SARSCoV-1, lupus eritematosus, *rheumatoid arthritis*, HIV, dan amebiasis hati. Klorokuin sempat digunakan untuk mengobati *coronavirus disease-19* (COVID-19), namun ternyata memiliki risiko yang lebih besar daripada manfaatnya sehingga izin edar obat klorokuin dicabut. Penelitian ini bertujuan untuk memvalidasi metode penetapan kadar klorokuin menggunakan kromatografi cair kinerja tinggi (KCKT) dalam sediaan obat tablet. Sistem KCKT dioptimasi menggunakan kolom Supercosil LC-8 (150 x 4 mm, 3µm) dengan perbandingan fase gerak metanol:aquades (0,25% dietilamin) 75:25 (v/v); laju alir 1,0 mL/min; volume injeksi 10 µL; panjang gelombang 343 nm. Kurva kalibrasi linear diperoleh pada rentang 20-100 ppm dengan nilai koefisien determinasi (r^2) sebesar 0,9994 dan nilai koefisien korelasi (r) sebesar 0,9997. Batas deteksi (LOD) dan batas kuantitas (LOQ) yang diperoleh secara berturut-turut sebesar 2,41 ppm dan 8,03 ppm. Standar deviasi (SD) diperoleh sebesar 1,37; koefisien variasi (KV) atau *relative standard deviation* (RSD) sebesar 1,36%; dan HORRAT sebesar 0,13. Nilai perolehan kembali (*%recovery*) didapatkan sebesar 99,64% dan nilai faktor selektivitas (α) sebesar 3,99. Kadar klorokuin yang diperoleh dalam sediaan obat tablet sebesar 61,11 ppm dengan perolehan kembali (*%recovery*) sebesar 101,85%. Hasil yang diperoleh telah memenuhi persyaratan sehingga metode ini dapat dikatakan valid, akurat, dan memiliki waktu analisis yang singkat.

Kata kunci: antimalaria, KCKT, klorokuin, validasi metode

ABSTRACT

Chloroquine is an aminoquinoline that can be used for the treatment of malaria, SARSCoV-1, lupus erythematosus, rheumatoid arthritis, HIV, and liver amebiasis. Chloroquine was used to treat coronavirus disease-19 (COVID-19), but it was found to have greater risks than benefits so that the distribution license for chloroquine drugs was revoked. This study aims to validate the method of determining chloroquine levels using high-performance liquid chromatography (HPLC) in tablet drug preparations. The HPLC system was optimized using a Supercosil LC-8 column (150 x 4 mm, 3µm) with a mobile phase ratio of methanol:distilled water (0.25% diethylamine) 75:25 (v/v); flow rate 1.0 mL/min; injection volume 10 µL; wavelength 343 nm. A linear calibration curve was obtained in the range of 20-100 ppm with a coefficient of determination (r^2) value of 0.9994 and a correlation coefficient (r) value of 0.9997. The limit of detection (LOD) and limit of quantity (LOQ) obtained were 2.41 ppm and 8.03 ppm. The standard deviation (SD) obtained was 1.37; the coefficient of variation (KV) or relative standard deviation (RSD) was 1.36%; and the HORRAT was 0.13. The %recovery value obtained was 99.64% and the selectivity factor (α) value was 3.99. The chloroquine level obtained in the tablet drug preparation was 61.11 ppm with a %recovery value of 101.85%. This results obtained have met the requirements so this method can be said to be valid, accurate, and has a short analysis time.

Keyword: antimalarial, chloroquine, HPLC, validation method