

INTISARI

VALIDASI METODE ANALISIS UNTUK PENETAPAN KADAR ANTIBIOTIK LINKOMISIN MENGGUNAKAN KROMATOGRAFI CAIR KINERJA TINGGI (KCKT)

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Antibiotik merupakan sediaan farmasetik yang dihasilkan melalui proses mikrobiologi dan bersifat bakteriostatik atau bakteriosidal. Linkomisin merupakan salah satu antibiotik yang sering digunakan sebagai obat hewan. Pemeriksaan kadar linkomisin dalam obat hewan salah satunya menggunakan metode kromatografi cair kinerja tinggi (KCKT). Penelitian ini bertujuan untuk melakukan validasi metode analisis yang tepat untuk mengukur kadar linkomisin menggunakan KCKT.

Validasi metode analisis menggunakan KCKT Shimadzu 6.1, kolom C₁₈ 150x4,6 mm; suhu 30°C; panjang gelombang detektor UV-Vis 254 nm; dan laju air 1 mL/ menit. Fase gerak menggunakan metanol 90% yang dibuat dengan mencampurkan metanol dan akuabides dengan perbandingan 90:10. Sampel berupa larutan standar linkomisin konsentrasi 10 µg/mL, 50 µg/mL, 100 µg/mL, dan 500 µg/mL dengan dua kali replikasi per sampel per hari selama tiga hari sebanyak 20 µL per injeksi. Parameter yang diukur yaitu selektivitas, linearitas, akurasi, presisi, batas deteksi, dan batas kuantitasi.

Hasil penelitian menunjukkan selektivitas baik karena area puncak blanko tidak saling tumpang tindih jika dibandingkan dengan area puncak linkomisin. Hasil pengukuran menghasilkan persamaan garis linear $y = 114,11x + 3581,1$ dengan nilai $r = 0,9992$. Nilai akurasi berkisar antara 84,934-231,735%. Nilai presisi (RSD) berkisar antara 0,92-82,32%. Nilai batas deteksi 31,868 µg/mL dan nilai batas kuantitasi 106,225 µg/mL. Kesimpulan dari hasil pengujian adalah metode analisis yang dikembangkan dapat digunakan untuk penetapan kadar linkomisin.

Kata kunci: kromatografi cair kinerja tinggi, linkomisin, validasi

ABSTRACT

VALIDATION OF ANALYSIS METHOD FOR DETERMINING OF LINCOMYCIN ANTIBIOTIC LEVELS USING HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC)

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Antibiotics are medicinal drugs produced through microbiological processes and are bacteriostatic or bactericidal. Lincomycin is an antibiotic that is often used as an animal medicine. Determination of lincomycin's level can be performed using high performance liquid chromatography (HPLC) method. The aim of this study was to validate the analytical method for measuring lincomycin using HPLC with methanol: aquabidest (90:10) v/v as mobile phase.

Validation of the analysis method was carried out using the Shimadzu 6.1 brand HPLC, C18 150x4.6 mm column; temperature of 30°C; wavelength 254 nm of UV-Vis detector; and a 1 mL/min of flow rate. The mobile phase used was 90% methanol which was made by mixing methanol and aquabidest in a 90:10 of ratio. The samples were standard solutions of lincomycin with concentrations of 10 g/mL, 50 g/mL, 100 g/mL, and 500 g/mL with two replications of 20 µL per injection per sample per day for three consecutive days. The parameters measured were selectivity, linearity, accuracy, precision, detection limit, and quantitation limit.

The results showed good selectivity because the blank sample peak area did not overlap when compared to the lincomycin peak area. The measurement results produce a linear line equation $y = 114.11x + 3581.1$ with a value of $r = 0.9992$. Accuracy values ranged from 84,934-231,735%. The precision value (RSD) ranged from 0.92-82.32%. The limit of detection value is 31.868 g/mL and the limit of quantitation value is 106.225 g/mL. The conclusion from the test results is that the analytical method developed can be used to determine the levels of lincomycin.

Keywords: high performance liquid chromatography, lincomycin, validation