

Simple and Fast Determination of Cefpodoxime and its Schiff's Base Derivative Using Colorimetric Technique

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SUMMARY. A simple, fast, and validated method is reported to check the quality of various brands of cefpodoxime, a third generation cephalosporin antibiotic. A colorimetric method has been developed to determine cefpodoxime (CPD) by derivatization reaction with p-dimethylamino benzaldehyde (DAB). The molar absorptivity of CPD-DAB derivative was calculated to be $1.3 \times 10^5 \text{ L mol.cm}^{-1}$ and λ maximum was 390 nm. The calibration curve was linear in range of 1-5 $\mu\text{g/mL}$ and follows Beers's law in this range. The color reaction was stable and didn't show any change in radiation absorbance for one day. The newly developed and optimized method was very precise and accurate. The method has successfully been applied to check the quality of ten different brands containing CPD drug. All the brands were purchased from local market of Pakistan. The percentage recovery of CPD found in different pharmaceutical brands were within 95 to 99.5% with RSD value calculated in between RSD 0.69-0.96% (n = 3), respectively.

RESUMEN. Se informa sobre un método simple, rápido y validado para verificar la calidad de varias marcas de cefpodoxima, un antibiótico cefalosporínico de tercera generación. Se ha desarrollado un método colorimétrico para determinar cefpodoxima (CPD) por reacción de derivatización con p-dimetilamino benzaldehído (DAB). Se calculó que la absorptividad molar del derivado de CPD-DAB era de $1,3 \times 10^5 \text{ L mol.cm}^{-1}$ y el máximo de λ era de 390 nm. La curva de calibración fue lineal en el rango de 1-5 $\mu\text{g/mL}$ y sigue la ley de Beer en este rango. La reacción de color fue estable y no mostró ningún cambio en la absorbancia de la radiación durante un día. El método recientemente desarrollado y optimizado fue muy preciso y exacto. El método se ha aplicado con éxito para comprobar la calidad de diez marcas diferentes que contienen fármacos CPD. Todas las marcas se compraron en el mercado local de Pakistán. El porcentaje de recuperación de CPD encontrado en diferentes marcas farmacéuticas estuvo dentro del 95 al 99,5% con un valor de RSD calculado entre RSD 0,69-0,96% (n = 3), respectivamente.

KEY WORDS: cefpodoxime (CPD), colorimetric, 4-dimethylaminobenzaldehyde (DAB),.

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