International Journal of PharmTech Research
CODEN (USA): IJPRIF, ISSN: 0974-4304, ISSN(Online): 2455-9563
Vol.9, No.9, pp 294-308, 2016

Separation and Pre-Concentration for the Spectrophotometric Determination of Chloramphenicol in Pharmaceutical Preparations

Abbas Noor Alshirifi* and DheyaaYahaiaAlhameedi

Department of Chemistry, Faculty of Science, University of Babylon, HILLA, IRAQ

Abstract:A new simple, rapid, sensitive, selective, and accurate cloud point extraction method for the spectrophotometric determination of Chloramphenicol (CAP)in different pharmaceutical preparations. Chloramphenicol **as** active antibiotic is widely used in the treatment the diseases. The spectrophotometric method is based on the condensation reaction between CAP and 1,2naphthoquinone-4-sulfonic(1,2 NQS) as reagent to formed aorange-red compound after reducing nitro group in drug into amino group by used a concentratedHCl and zinc dust. The product was extracted with triton X 114 by cloud point extraction technique to increase sensitivity of method, range-red compound was showed a maximum absorption at 489nm. Beers law was obeyed in the concentration rangeof0.1-6µg.mL^{-1} with a molar absorptivity (7.49 x 10^{4})L. mol^{-1}.cm^{-1},andsandell's sensitivity (4.31x 10^{-3}) µg.cm^{-2},respectively. The analytical parameters were optimized as the following: The best temperature is(1-60 °C), the reaction completed directly with addition NQS to drug and the best volume of NQS solutionis1mL.Limit of detection (LOD),and limit of quantification (LOQ)are0.032 ppm, and 0.097 ppm, respectively, E%, Rv and fc was 99.92, 0.3, 3.33333 respectively, the recoveries range98.53%-103.37%.Themethodwas successfully applied to the analysis of the (CAP)units pharmaceutical preparations(Eye drops ,Ointments and Capsules).

Key words: Drugs, Chloramphenicol (CAP), 1,2naphthoquinone-4-sulfonic(1,2 NQS), condensation reaction, Pharmaceutical preparation.

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