International Journal of PharmTech Research

CODEN (USA): IJPRIF, ISSN: 0974-4304, ISSN(Online): 2455-9563
Vol.9, No.9, pp 281-293, 2016

New Spectrophotometric Determination of Chloramphenicol in Pharmaceutical Preparations Based on Condensation Reaction with 1,2-Naphthoquinone-4-Sulfonic Acid (1,2 NQS) as Reagent

Abbas Noor Alshirifi* and Dheyaa Yahaia Alhameedi

Department of Chemistry, Faculty of Science, University of Babylon, Hilla, Iraq

Abstract: A new simple, rapid, sensitive, selective, and accurate 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 1,2 naphthoquinone-4-sulfonic(1,2 NQS) as reagent to formed an orange-red product after reducing nitro group in drug into amino group by used a concentrated HCl and zinc dust . Orange-red product was showed a maximum absorption at 489nm. Beers law was obeyed in the concentration range of 1-9µg.mL^{-1} with a molar absorptivity (1.86 * 10^{4})L.mol^{-1}.cm^{-1},and sandell's sensitivity (1.73* 10^{-2}) µg.cm^{-2}, respectively. The analytical parameters were optimized as the following: It was found the time for completed reaction was (10 min) at temperature (70 ^{0}C)in bicarbonate solution, and the best volumeof0.01 mol. L^{-1} of 1,2 NQS solutionis1mL.Limit of detection (LOD), and limit of quantification (LOQ)are0.068 ppm, and 0.207 ppm, respectively, the recoveries range 98.52%-100.66%.The method was successfully applied to the analysis of the (CAP)in its pharmaceutical preparations(Eye drops ,Ointments and Capsules).

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

*****