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NOVEL ANALYTICAL METHOD DEVELOPMENT AND VALIDATION FOR CEFOXITIN NEW β-LACTAM ANTIBIOTICS IN BULK AND DOSAGE FORM

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ABSTRACT:
The Objective of this work based on for development of a novel method and validation of method used for determination of amount in manner of assay present into Cefoxitin in bulk and Tablet Dosage form. The aspire and intention of the present study is to expand moreover authenticate a novel as well as rapid reverse phase chromatography separation technique for the estimating Cefoxitin in bulk and dosage form to justify the presence of drug in the developed dosage forms and give satisfaction towards presence of medicine and its assay estimation. As the drug Cefoxitin compendial monograph is not available in Indian Pharmacopoeia and British Pharmacopoeia, but a compendial monograph is available in United Sate Pharmacopoeia i.e. USP- 40 for injection dosage form only. The developed method is new, simple, economic, rapid, eco friendly, accurate, and precise HPLC method for qualitative and quantitative estimation of Cefoxitin in bulk and dosage form like tablet, capsule, injection also.

INTRODUCTION

Cefoxitin is a semi synthetic cephamycin antibiotics basically used to treat various bacterial infections. It is highly resistant to a broad spectrum of β-lactamase and show efficacy towards wide range of both aerobic & anaerobic gram-positive and gram-negative microorganisms [2, 12].

Molecular formula of Cefoxitin is $C_{16}H_{17}N_3O_7S_2$ and chemically Cefoxitin is (6R,7S)-3-[(carbamoyloxy)methyl]-7-methoxy-8-oxo-7-[2-(thiophen-2-yl)acetamido]-5-thia-1azabicyclo[4. 2.0]oct-2-ene-2-carboxylic acid. Molecular weight of Cefoxitin is 427.454 g/mol. Cefoxitin is sparingly soluble in water and insoluble in crude with PKa value 3.59 [2, 5].

Literature survey indicated that very few analytical methods have been establishes for the qualitative and quantitative analysis of Cefoxitin in bulk and dosage form [1, 6]. However drug is widely used in pharmaceutical field for the treatment of bacterial infections and drug does not any Pharmacopoeial or compendial analytical method in IP and BP [3, 4].

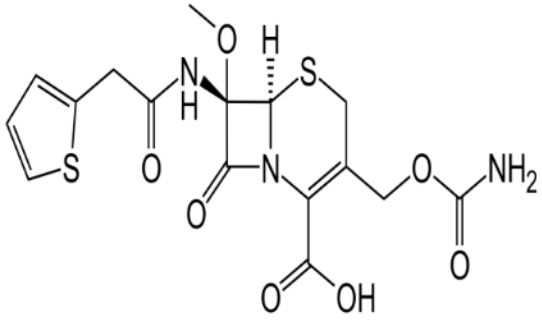

Fig.1: Chemical Structure of Cefoxitin.

The objective of this work is to develop a new, simple, economic, rapid, eco friendly, accurate, and precise HPLC method for qualitative and quantitative estimation of Cefoxitin in bulk and dosage form.

MATERIALS AND METHOD:

Material and Reagents

Cefoxitin working standard might have been procured starting with Teena laboratories, Hyderabad, India. Economically accessible Cefoxitin bought from nearby drug store. Methanol HPLC evaluation also Ortho phosphoric corrosive are