ORIGINAL ARTICLE

# Quantitative Analysis of Cephradine using the Modern High-performance Liquid Chromatographic Method

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## Abstract

**Context:** Cephradine is the most important type of antibiotics used vary widely. Analysis of these antibiotics is the challenge because of their sensitivity and instability to different conditions. **Objective:** The present article is extended to find out HPLC method. **Materials and Methods:** The Standard Solution 100 µg/ml Cephradine was prepared by dissolving accurately weight 100 mg of Cephradine in 1000 ml methanol and the range 2.5-12.5 µg/ml was prepared by serial dilution of the sample with methanol. HPLC-UV system with Ion Pac column Zorbax 300-SCX Agilent Column; 5µm, 4.6×250 mm used for analysis for Cephradine in formulations capsules. The chromatographic conditions used for the analysis as well as analytical parameters study carried out with experimental conditions. HPLC method is the most common method for the analysis of Cephradine in formulation and in biological fluids, the several analytical procedures have been described for analysis of Cephradine in different pharmaceutical the formulations. **Result and Discussion:** During the study analytical parameters studied such as range, linearity, precision, accuracy, *LLOD, LLOQ*. Cephradine as formulation capsules was almost stable at room temperature up to 2-3 days in the aqueous medium at pH between 4 and 5. The focus of the study of analysis of Cephradine in formulation capsules is used for the determination of various Cephradine for supported by budding researchers. **Conclusion:** This study suggested a simple, easy and highly sensitive method using standardized samples obtained from the best international companies. Comparisons were made with different commercial samples of cephradine antibiotics. The actual ratios of cephradine were determined in commercial pharmaceuticals.

**Key words:** Antibiotic drugs, cephradine capsules formulation, high-performance liquid chromatography-ultraviolet protocol

## INTRODUCTION

Cephradine($C_{16}H_{19}N_3O_4S$)is(6*R*,7*R*)-7-[(*R*)-2-amino-2-(1,4-cyclohexadien-1-yl) acetamido]-3-methyl-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylic acid, which is a first-generation antibiotic of the semisynthetic cephradine series. show in Figure 1: (a and b)

## SYNTHESIS

1,4-cyclohexadiene rings are nearly as planar as benzene rings, but of greatly different reactivity, a cephalosporin was synthesized with such a moiety. The Birch reduction is an organic reaction which is particularly useful in synthetic organic chemistry. The reaction was reported in 1944 by the Australian chemist Arthur Birch (1915–1995) working in the Dyson Perrins Laboratory at the University of Oxford, building on earlier work by Wooster and Godfrey published in 1937. It converts aromatic compounds having a benzenoid ring into a product, 1,4-cyclohexadiene, in which two hydrogen atoms have been attached on opposite ends of the molecule. It is the organic reduction of aromatic rings in liquid ammonia with sodium, lithium, or potassium and an alcohol, such as ethanol and tetra-butanol. This reaction is quite unlike catalytic hydrogenation, which usually reduces the aromatic ring all

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