



Selective and Validated Spectrophotometric Methods for Determination of Acyclovir and Ganciclovir with 2, 4 DNP as Reagent

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Abstract

New, simple and sensitive spectrophotometric methods for the determination of acyclovir and ganciclovir have been developed. The method is based on the oxidation of 2, 4-dinitrophenyl hydrazine (2, 4 DNP) and coupling of the oxidized product with acyclovir and ganciclovir to give intensely colored chromogen. Acyclovir and ganciclovir showed maximum absorbance at 414 nm and 450 nm with linearity was observed in the concentration range of 20-60 $\mu\text{g mL}^{-1}$ and 5-25 $\mu\text{g mL}^{-1}$ respectively. The relative standard deviations of 0.016 for acyclovir and 0.014 ganciclovir were obtained. The recoveries of acyclovir and ganciclovir tablets are in the range 98.48, 99.28 respectively. The proposed method is simple, rapid, precise and convenient for the assay of acyclovir and ganciclovir in commercial tablet preparations.

Keywords: *acyclovir and ganciclovir; Oxidation, 2, 4 DNP, Spectrophotometry, Pharmaceutical formulation*

Introduction

Acyclovir (ACV), (9,2-hydroxyethoxy) methyl guanine, and it is an antiviral drug used extensively in the treatment of skin infections caused by herpes simplex virus [1]. It is official in European Pharmacopoeia [2], British Pharmacopoeia [3] and United States Pharmacopoeia [4]. Acyclovir is highly active in-vitro against herpes simplex-b (HSV)

type-I and II and varicella viruses, but its toxicity to mammalian cells is low. Acyclovir is phosphorylated to the active compound acyclovir triphosphate after entry into herpes infected cell. Literature survey [5-8] reveals that few methods like high performance liquid chromatography and few spectrophotometric methods. Ganciclovir (GCV) [9-12] is chemically

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