**Development of New Visible Spectrophotometric Methods for the Determination of Quetiapine in Pharmaceutical Dosage Forms**

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Three simple and sensitive spectrophotometric methods have been developed for the determination of quetiapine in pure and pharmaceutical dosage forms. Method A was based on the formation of ion-association complex of the drug with solochrome Black T (λmax: 520 nm). Method B was based on oxidative coupling of the drug with 3-methyl-2-benzothiazolinone hydrazone (λmax: 620 nm). Method C was based on oxidation followed by complex formation with 1,10-phenanthroline (PTL) in the presence of ferric chloride to form a colored chromogen (λmax: 510 nm). These methods were statistically evaluated and found to be precise and accurate.

**Key words:** Quetiapine, Spectrophotometry, Chromogen, Pharmaceutical dosage form.

**INTRODUCTION**

Quetiapine (QTP) is chemically 2-(2-(4-dibenzo [b,j][1,4]thiazepine-11-yl-1-piperazinyl) ethoxy) ethanol with selective clinical activity against schizophrenia as well as for the treatment of acute manic episodes associated with bipolar I disorder (Ramington, 2000; O’Neil et al 2001). The literature survey revealed that there are reports regarding analytical method developments including spectrophotometric (Pucci et al 2003; Hiranman et al 2009; Bagade et al 2009; Patil et al 2011; Shukla et al 2011; Shah et al 2011) and HPLC (Saracino et al 2006; Prasanthi et al 2011) methods for the estimation of different drugs in bulk and pharmaceutical formulations, but only a few methods are available for QTP. In the present investigation, three simple and sensitive spectrophotometric methods have been developed for the determination of QTP. Method A is based the formation of ion-association complex of the drug with solochrome Black T (SBT). Method B is based on oxidative coupling of the drug with 3-methyl-2-benzothiazolinone hydrazone (MBTH). Method C is based on oxidation followed by complex formation with 1,10-phenanthroline (PTL) (Collins et al 1959; Tsen, 1961) in the presence of ferric chloride to form a colored chromogen. Beer’s law was obeyed and results of analysis for the three methods were validated statistically and by recovery studies.

**MATERIALS AND METHODS**

**Materials**

A UV-Vis spectrophotometer (Systronics, Model 2201) was used for all the measurements. All the chemicals used were of analytical grade. solochrome Black T (0.5%), HCl (5 N), MBTH (0.2% w/v), 1,10-phenanthroline (0.198% w/v), and ceric ammonium sulphate (1% w/v) were prepared.

**Methods**

**Preparation of standard drug solution**

The stock solution (1 mg/ml) of quetiapine was prepared by dissolving 100 mg of drug in 100 ml of distilled water. A portion of stock solution was diluted to get the working standard solution.