Chapter 1
Print ISBN: 978-93-91312-07-7, eBook ISBN: 978-93-91312-12-1

Recent Development and Validation of Sodium Nitroprusside in Visible Spectrophotometric Determination of Triprolidine Hydrochloride

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DOI: 10.9734/bpi/cacs/v2/2362F

ABSTRACT

Objective: A simple and sensitive extractive visible spectrophotometric method is developed for the assay of Triprolidine Hydrochloride using Sodium nitroprusside.
Methods: Based on color development with amino groups, presence, which is basic, may be due to the formation of inner complex replacing H_2O by the tertiary amino group present in the drug.
Results: The colored products exhibit absorption λ_{max} at 447 nm. Regression analysis of Beer–Lambert plots showed good correlation in the concentration ranges (40–240) µg/ml and correlation coefficients are 0.994. The Sandell's sensitivities 2.6373×10^{-2} (1 mole cm^{-1}) and molar absorptivity value are 1.1938×10^{4} (g cm^{-2}). Recovery studies are found to be 99.708–99.786.
Conclusion: The method can be applied successfully for the estimation of the drug in the presence of other ingredients that are usually present in formulations. The proposed method reports a new way for the determination of Triprolidine Hydrochloride (TPH) in pharmaceuticals.

Keywords: Tertiary amino group, Inner complex, Regression analysis, spectrophotometric,validation

1. INTRODUCTION

Triprolidine Hydrochloride (TPH) is chemically 2-[(1E)-1-(4-methylphenyl)-3-(pyrrolidin-1-yl)prop-1-en-1-yl] pyridine (Fig. 1). This is an anti-allergic, histamine H1 antagonist that blocks the action of endogenous histamine, which subsequently leads to temporary relief of negative symptoms brought on by histamine. It is used for the treatment of seasonal or perennial allergic rhinitis or non-allergic rhinitis, conjunctivitis, and mild urticarial and angioedema [1,2]. The most common side effects are sedation, dizziness, coordination, gastrointestinal disturbances, nausea, vomiting, and diarrhea. It may also produce blurred vision, dryness of mouth, tight of the chest, and blood disorders, including agranulocytosis and hemolytic anemia [3]. A literature survey revealed that few analytical methods have been reported for the determination of TPH in plasma using thin-layer chromatography [4] simultaneous determination of TPH with other anti-histamines [5-7] other agents [8,9] reported. Few methods have been developed for the determination of triprolidine by high-pressure liquid chromatography (HPLC) [10] and spectrophotometric method [11]. Spectrophotometric and High performance liquid chromatographic method for the determination of TPH and its metabolite in biological samples using liquid chromatography [12], mass spectrometry [13], capillary Zone Electrophoresis Method for Quality Control Analysis of TPH with other drugs [14], degradation studies of TPH and stability-indicating ultra-performance liquid chromatography method [15], new plastic membrane and carbon paste ion selective electrodes for the determination of TPH [16] were reported. TPH is usually administered in combination with dextromethorphan and/or phenylpropanolamine and also with paracetamol [17]. In most of the developing countries, UV-Visible spectroscopy is the

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