Asian Journal of Pharmaceutical Research and Development
(An International Peer-Reviewed Journal of Pharmaceutical Research and Development)
www.ajprd.com

SIMULTANEOUS DETERMINATION OF CEFTRIAXONE SODIUM AND H_2 RECEPTOR ANTAGONISTS IN PHARMACEUTICAL FORMULATIONS AND HUMAN SERUM BY RP-HPLC

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Received: 18-12-12 **Revised and Accepted: 20 January 2013**

ABSTRACT

An accurate, sensitive and least time consuming reverse phase high performance liquid chromatographic (RP-HPLC) method for the estimation of ceftriaxone in the presence of H_2 receptor antagonists in formulation and human serum has been developed and validated. Ceftriaxone and H_2-receptor antagonists analysis was conducted on a Purospher STAR, C_{18} (5µm, 250 x 4.6 mm) column and mobile phase was water and methanol (60:40, v/v), pH adjusted at 2.8 with ortho-phosphoric acid. Flow rate was 1 $mLmin^{-1}$ and UV detector was set at 240 nm for cimetidine, ranitidine and Famotidine. The results obtained showed a good agreement with the declared content. The method shows good linearity in the range of 2.5–25 μgmL^{-1} with a correlation coefficient 0.9995 – 0.9999 (inter-and intra-day RSD < 2 %).The limit of detection and quantification for ceftriaxone and H_2 receptor antagonists in pharmaceutical formulation and serum were in the range 0.06-0.41 μgmL^{-1}. Analytical recovery was 98.6 - 101.29%. The proposed method may be used for the quantitative analysis of commonly administered H_2 receptor antagonists i.e. cimetidine, ranitidine and Famotidine alone or in combination with ceftriaxone from raw materials, dosage formulations and in serum. The established HPLC method is rapid, accurate and selective, because of its sensitivity and reproducibility.

KEYWORDS: Ceftriaxone, H_2 receptor antagonists, Cimetidine, Ranitidine, Famotidine and RP-HPLC.