www.sphinxsai.com

PharmTech

International Journal of PharmTech Research
CODEN (USA): IJPRIF ISSN : 0974-4304
Vol.4, No.1, pp 309-310, Jan-Mar 2012

Application of UV Spectrophotometric Method for Estimation of Iron in Tablet dosage form

Dipak J.Garole

Department of Organic Chemistry, North Maharashtra University, Jalgaon, Maharashtra, India.

Corres.author: drdipakgarole@gmail.com

Abstract: A Simple, rapid, accurate, economical and reproducible spectrophotometric method has been developed for quantitative estimation of Iron in tablet. The method optimum conditions for the analysis of the drug were established. The wavelength maxima for Iron were found to be 540 nm and method obeys Beers law at concentration range 1-10 µg/ml. The iron content was found to be as 99.9. The proposed method was validated statistically and recovery studies.
Key words: Iron, Spectrophotometric, Tablet.

Introduction:

Iron is essential trace element, required for hemoglobin formation and the oxidative process of living tissues. Iron precipitations are employed Iron deficiency anemia. [1] Spectrophotometric determination of iron in siddha formulation Tapyadi Lauha [2] many methods have been proposed for iron dermination as active drug by spectophotometry [3] and LC [4] in pharmaceuticals. Therefore it was thought worthwhile to develop simple, rapid, accurate, economical and reproducible spectrophotometric method for estimation of Iron in tablet dosage form.
All chemicals were used of analytical grade. Spectral and absorbance measurement were made on Simadzu Double beam UV-Visible spectrophotometer 2450 with 10 mm matched quartz cells.

Materials and Methods

The Iron tablets were procured from local pharmacy. All chemicals were used of analytical grade. Spectral and absorbance measurement were made on Simadzu Double beam UV-Visible spectrophotometer 2450 with 10 mm matched quartz cells.

Preparation of standard solution

An accurately weighed 0.211g of Ferrous ammonium sulphate hexahydrate in 100 ml volumetric flask add 10 ml distilled water and 5 ml 1M sulphuric acid dilute up to the mark with distilled water. Further 10ml of stock solution to 100 ml with distilled water. From this stock solution 5, 10, 15, 20 and 25µg/ml solutions were prepared by appropriate dilutions with distilled water. 10ml of each standard stock solution in 50 ml volumetric flask add 5 ml 20% citric acid 5 ml 10% thioglycolic acid and 5 ml ammonia solution and dilute up to the mark with distilled water.

Preparation of sample solution

Weighed powder accurately equivalent to 20 tablet and transfer 100 ml volumetric flask add 10 ml distilled water and 5 ml 1M sulphuric acid dilute up to the mark with distilled water. Further 10ml of stock solution to 100 ml with distilled water. 10ml of this stock solution in 50 ml volumetric flask add 5 ml 20% citric acid 5 ml 10% thioglycolic acid and 5 ml ammonia solution and dilute up to the mark with distilled water. The result of assay are presented in Table:-1.

Table:-1. Result of assay

[a]Label Claim mg/tablet	[*]Amount found mg/tablet	% Label Claim (% ± Standard Deviation)	% Relative Standard Deviation
100	99.9	0.1	0.042

[*]Average of three determinations

Recovery Studies

The accuracy of proposed method was checked by recovery studies, by addition of standard drug solution to preanalysed sample solution at three different concentration levels within the range of linearity for both the drugs.

Results and Discussion

The Iron exhibits absorption at 540 nm The linearity was observed in concentration range of 1-10 µg/mL. The amount of Iron estimated by proposed method was good agreement with the label claim. The low percentage Relative standard deviation value indicates that method is accurate. The simple, rapid, economical and reproducible.

References

1) M.G. Gioia, A.M. Di Pietra, R.Gatti, Journal of Pharmacuitical and Biomediacal Analysis 29 (2002) 1159-1164.
2) K.Yamini, V. Chalapathi, V.Gopal, Int J of Pharm Tech Research, Vol 3 No.1, (2011) 330-332.
3) L.S. Sharma, G.N. Ramesh, C.J. Kumar, A.V. Reddy, J Indian Chem Sco., 77(2000) 405-406.
4) M.Y. Khuhawar, S.N. Lanjwani, Talanta 46 (1998) 485-490.

*****