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Research Article

NEW VISIBLE SPECTROPHOTOMETRIC METHODS FOR DETERMINATION OF CAMYLOFIN

B. Anupama* and Vemugunta Ramakrishna

K.V.S.R. Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India.

ABSTRACT

Two Simple and sensitive visible spectrophotometric methods have been developed for the estimation of Camylofin in pure and pharmaceutical dosage forms .These methods are based on the Redox reaction between FC and Camylofin resulting in the formation of blue colored chromogen at 700nm and the complex formation between Potassium permanganate and Camylofin resulting in the formation of blood red colored chromogen at 590nm .The absorbance is measured against the corresponding reagent blanks.These methods have been statistically evaluated and found to be precise accurate,economical and robust.When pharmaceutical preparations containing Camylofin were analysed ,the results obtained by the proposed methods are in good agreement with the labeled amounts.

Keywords: Camylofin, F.C reagent, Spectrophotometry.

INTRODUCTION

Camylofin which is chemically 3-methyl butyl 2-(2-diethyl amino ethyl amino)-2-phenylacetate.Camylofin is used as an anti-spasmodic. It relieves abdominal pain and cramps. Camylofin is a phophodiesterase type-IV inhibitors ,which is believed to exert its actions in patients with spasmodic by increasing cAMP and externally reducing cytosolic calcium. In present investigation, two visible spectrophotometeric methods have been developed for the determination of Camylofin. The developed methods involve the formation of colored chromogen with FC and KMno4.

EXPERIMENTAL METHODS

Preparation of Reagents

1. Standard drug solution

Accurately weighed 100mg of Camylofin was transferred into a volumetric flask and dissolved in 100ml distilled water. From that 1ml was diluted to 10ml with water to get the working standard solution of concentration 100µg/ml.

2. Potassium permanganate reagent preparation (0.0063M): 99.54g of Potassium permanganate in 100ml distilled water.

3. NaOH: Dissolve 5gm of NaOH in 100ml of distilled water.

ASSAY PROCEDURES

Method A

Aliquots of working standard solution of Camylofin ranging from 1-3ml were transferred in to a series of 10ml volumetric flasks.To these 1 ml of FC reagent solution and 1ml of 5%NaOH solution were added and set a side for 10minutes.The final volume was made upto the mark with water.The absorbance of the bluish green color chromogen was measured at 700nm run against the corresponding reagent blank with in 30minutes of maximum color development.The amount of Camylofin was calculated from the corresponding Beer-Lambert's plot.

MethodB(KMnO4)

Aliquots of working standard solution of Camylofin ranging from 0.5-2.5µg/ml were transferred in to a series of 10ml volumetric flasks .To these 1ml of potassium permanganate reagent was added and wait for 10min.Finally volume was made upto 10ml with water.The absorbance of the red color chromogen was measured at 590nm against the reagent blank.

RESULTS AND DISCUSSION

The characteristics such as Beer's law limits, Sandell's sensitivity, molar extinction coefficient, percentage relative standard deviation, percentage range of error (0.05-0.01)were calculated for the method and results are summarized in table1.Studies reveal that the common excipients and others additives usually present in the suspension did not interfered in the proposed methods.

Table 1

PARAMETERS	METHOD A FC	METHOD B KMnO4
λ_{max}	700nm	590nm
Beer's law limit(µg/ml)	10-30	5-25
Sandell's sensitivity(µg/cm²/0.001abs)	0.043	0.030
Molar absorptivity(litre.mole^{-1}cm^{-1})	$0.0005x10^4$	$0.00084x10^4$
Regression equation(y*)		
Slope(b)	0.019	0.019
Intercept(a)	0.044	0.134
Correlation coefficient(r)	0.9998	0.9996
%Relative standard deviation	0.681	0.348
0.05significance level	0.569	0.291
0.01 significance level	0.837	0.428

Y*=a+bx,where Y is absorbance and x is concentration of Camylofin in µg/ml

Table 2

Formulations	Labelled amount (mg)	Amount found* by proposed method		% recovery** by proposed method	
		Method A	Method B	Method A	Method B
Sample 1	25	24.93	24.81	99.75	99.26
Sample 2	25	24.96	24.94	99.84	99.78
Sample 3	25	24.87	24.86	99.48	99.45
Sample 4	25	24.88	24.58	99.54	98.34

*Average of six determinations

** Recovery of amount added to the pharmaceutical formulations (Average of three determinations)

CONCLUSION

The proposed methods are applicable for the assay of drug Camylofin and have an advantage of wider range under Beer's law limits.The proposed methods are simple, selective and reproducible and can be used in routine determination of Camylofin in pure form and formulation with reasonable precision and accuracy.

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