Colorimetric Method for the Estimation of Escitalopram Oxalate in Tablet Dosage Form

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A colorimetric method for the analysis of escitalopram oxalate in pure form and in tablets has been developed based on the formation of chloroform soluble ion associates with bromocresol green acidic dye. The extract of ion associates exhibited absorption maxima at 417 nm obeying Beer’s law in the range of 2-10 µg/ml. The method is simple, precise and accurate with recovery of 98-102% and does not require any separation of soluble excipients from tablet dosage form.

Key words: Escitalopram oxalate, colorimetry, validation

Escitalopram oxalate is a newer antidepressant used for the treatment of panic disorder[1,2]. Escitalopram oxalate is S(+) enantiomer of the racemic bicyclic phthalene derivative of citalopram, which is chemically S(+) -1-[3(dimethylamino)propyl]-1-p-flurophenyl-5-phthalene carbonitrile. As it is not official in any Pharmacopoeia, there is no official method for its estimation. HPLC[3-8] methods were reported for the estimation of escitalopram oxalate in biological fluids. The present work describes a simple colorimetric method.

A Shimadzu 1700 Double beam UV/Vis spectrophotometer with 1 cm matched quartz cells was used for absorbance measurements. Tablets-A (Talopam, Lupin Pharmaceuticals Ltd., Mumbai, India), Tablets-B (Celepra, Micro Labs (P) Ltd., Bangalore, India) and Tablets-C (Zetalo, Piramal Health Care, Mumbai, India) were used in this study. Escitalopram oxalate tablets are available in various strength (5, 10 and 20 mg) and procured from a local pharmacy.

Escitalopram oxalate contains a tertiary amino group in its side chain, which readily complexes with an anionic species, bromocresol green (BCG) in chloroform and the neutral pair complex produced with \( \lambda_{\text{max}} \) 417 nm was measured spectrophotometrically.

Escitalopram oxalate (50 mg) was dissolved in 0.2
were shown in Table 1. The limit of detection and the limit of quantification were determined from the calibration values of six replicates and calculated by using slope and standard deviation. The limit of detection was found to be 0.003450326 and the limit of quantification was found to be 0.010455533.

The concentration of 6 µg/ml of escitalopram oxalate was selected and quantification in formulation was performed. The formulation Talopam 10 mg, Celepra 5 mg and Zetalo 5 mg were selected for the analysis and the amount present was found to be 10.03-10.30, 4.95-5.06 and 5.01-5.15 mg, respectively. In recovery studies the percentage recovery of Talopam, Celepra and Zetalo were found to be 101.32, 98.80 and 99.28, respectively. The result indicates that the proposed method is accurate, sensitive and easy for the determination of escitalopram oxalate in raw material and dosage form.

ACKNOWLEDGEMENTS

The authors are thankful to Arulthiru Bangaru Adigalar, President, Thirumathi Lakshmi Bangaru Adigalar, Vice-President and Dr. T. Ramesh, Managing Director-Adhiparasakthi Charitable Medical Educational and Cultural Trust, Melmaruvathur (TN) for providing necessary infrastructural facilities to carryout this work.

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