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Thin Layer Chromatographic Method for the Determination of Flurbiprofen

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ABSTRACT

The simple and sensitive thin layer chromatography method has been developed for the estimation of Flurbiprofen in pure and pharmaceutical dosage forms. The absorbance of the species is measured at 247nm. These methods have been statistically evaluated and found to be precise and accurate.
Keywords: Thin layer chromatography (TLC), Flurbiprofen.

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INTRODUCTION

Flurbiprofen is a member of the phenylalkanoic acid derivative family of non-steroidal anti-inflammatory drugs (NSAIDs) used to treat the inflammation and pain of arthritis. Flurbiprofen is also used as an active ingredient in some kinds of throat lozenges (Strepsils Intensive).A single enantiomer of race mate flurbiprofen, tarenflurbil [(R)-flurbiprofen)], is currently in clinical trials for the treatment of metastatic prostate cancer. Chemically it is (RS)-2-(2-fluorobiphenyl-4-yl) propanoic acid. The trade names of Flurbiprofen is Ansaid, marketed by Pfizer, Flurwood by W.Woodward and Froben, by Abbott.In the present investigation, simple and sensitive TLC method have been developed for the determination of Flurbiprofen.

EXPERIMENTAL DETAILS

Preparation of reagents:

1. Standard drug solution: About 100mg of Flurbiprofen was accurately weighed and dissolved in 100 ml of water to obtain a stock solution of 1 mg/ml. This solution was further diluted to get working standard solution of 100μg/ml.
2. Mobile phase: chloroform: methanol: ammonia (90: 10: 0.6 v/v).

PROCEDURE

A sensitive, selective, precise, and stability-indicating thin-layer chromatographic (TLC) method has been established for densitometric analysis of flurbiprofen in pharmaceutical tablets & pure form. Chloroform: methanol: ammonia (90: 10: 0.6 v/v) .was used as mobile phase. Regression analysis of the calibration data revealed a good linear relationship between peak-area response and amount of flurbiprofen .The limits of detection (LOD) and quantification (LOQ) were 10 and 32 ng per band, respectively. Flurbiprofen was subjected to different stress conditions. An *Arrhenius* plot was constructed for degradation under acidic conditions and the activation energy was calculated.

RESULTS AND DISCUSSION

Regression analysis of the calibration data revealed a good linear relationship between peak-area response and amount of flurbiprofen in the range 50–600 ng per band (r^2 = 0.9993 ± 0.0004). The limits of detection (LOD) and quantification (LOQ) were 10 and 32 ng per band, respectively. Flurbiprofen was subjected to different stress conditions. The T LC data was in table 1.

TABLE NO: 1 TLC DATA:

Sample	Rf value	Number of spots
Pure drug (flurbiprofen)	0.78	Single
Formulation (flurbiprofen)	0.77	Single

CONCLUSION

The proposed methods are simple, selective, and reproducible and can be used in the routine analysis of Flurbiprofen in bulk drug and formulations with reasonable accuracy and precision.

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