Research article

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SIMPLE METHOD DEVELOPMENT OF ACECLOFENAC BY RP-HPLC METHOD

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ABSTRACT

A simple, selective, rapid, precise and economical reverse phase high pressure liquid chromatographic method has been developed for aceclofenac. The method was carried out on a Phenomenex C_{18} (250 mm x 4.6 mm i.d., 5 µ) column with a mobile phase consisting of acetonitrile: 0.1% Triethyl amine (adjusted to pH 4.5 using orthophosphoric acid) (60:40 v/v) at a flow rate of 1.0 ml/min. Detection was carried out at 254 nm.

Keywords: Aceclofenac, Method development

INTRODUCTION

Aceclofenac is a non-steroidal anti-inflammatory drug with good analgesic and anti-rheumatic properties.[1] Chemically it is [[[2-[(2, 6-Dichlorophenyl) amino] phenyl] acetyl] oxy] acetic acid. It is used in various pain conditions like rheumatoid arthritis, osteoarthritis and ankylosing spondylatis.[1–4].Limited method has been reported in UV and HPLC methods [5,6].

EXPERIMENTAL

Reagents and chemicals:

Acetonitrile HPLC grade was procured from Merck KGaA, Germany. Triethyl amine AR grade were procured from SYSTEMRM, Selangor, Malaysia. Water HPLC grade was obtained from a Milli-QRO water purification system. Reference standards of aceclofenac were received from swapnroop drugs & pharmaceuticals Ltd, India.

Apparatus:

HPLC chromatographic separation was performed on a Shimadzu liquid chromatographic system equipped with a LC-20AD solvent delivery system (pump), SPD-20A photo diode array detector, and SIL-20ACHT injector with 50µL loop volume. LC solution version 1.25 was applied for data collecting and processing (Shimadzu, Japan).

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Preparation of standard solutions:

Standard stock solutions of 1.0 mg/ml aceclofenac was prepared separately using a mixture of water and acetonitrile (1:1 v/v).

RESULTS AND DISCUSSION

Method development:

Apparatus and chromatographic conditions:

HPLC chromatographic separation was performed on a Shimadzu liquid chromatographic system equipped with a LC-20AD solvent delivery system (pump), SPD-20A photo diode array detector, and SIL-20ACHT injector with 50µL loop volume. LC solution version 1.25 was applied for data collecting and processing (Shimadzu, Japan). A Phenomenex C_{18} column (250 mm x 4.6 mm i.d., 5µ) was used for the separation, mobile phase of a mixture of acetonitrile and 0.2% Triethyl amine (adjusted to pH 4.5 using orthophosphoric acid); (60:40 v/v) was delivered at a flow rate of 1.0 ml/min with detection at 254 nm. The mobile phase was filtered through a 0.2µ membrane filter and degassed. The injection volume was 50 µl and the analysis was performed at ambient temperature shown in Figure 1.

Preparation of standard solutions:

Standard stock solutions of 1.0 mg/ml aceclofenac were prepared separately using a mixture of water and acetonitrile (1:1 v/v). From the standard stock solution, standard solution was prepared to contain 10.0 µg/ml of aceclofenac.

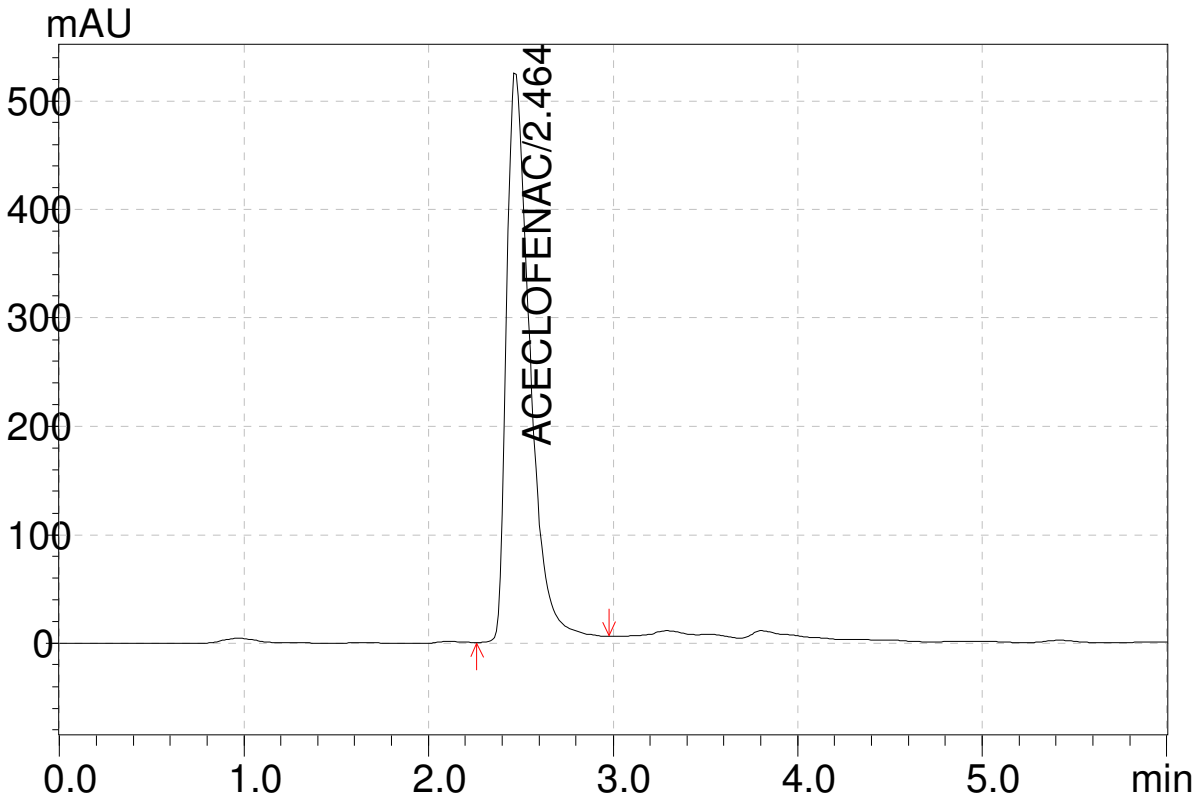

Figure- 1: Typical Chromatogram of Standard

CONCLUSION

In conclusion, the developed method for the estimation of azelnidipine is accurate, precise and selective and it can be applicable for the further research. These advantages encourage the application of this method in routine analysis aceclofenac pharmaceutical formulations.

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