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NOTE

UV-Spectrophotometric Determination of Aceclofenac in Tablets

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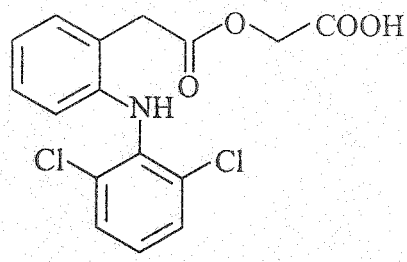
Simple, sensitive and economical UV-spectrophotometric method is developed for the estimation of aceclofenac in tablets. In this method, aceclofenac is determined accurately having absorbance maximum at 203 nm. Beer's law is obeyed in the concentration range 0–20 μg. Linearity is obtained in the concentration range of 2–10 μg/mL.

Key Words: Spectrophotometric analysis, Aceclofenac

Aceclofenac is 2-[(2,6-dichlorophenyl)amino] phenyl acetoxy acetic acid and is used as anti-inflammatory drug[1]. The structural formula of aceclofenac[2] is as follows:



The main object of this work is to establish a simple and accurate spectrophotometric method for the determination of aceclofenac. This method can be used also for the routine and quality control analysis of aceclofenac in raw material and pharmaceutical formulations. This method can also be used as stability indicating method. Aceclofenac can be determined in presence of degradation products. Aceclofenac directly blocks PGE2 secretion at the site of inflammation by inhibiting IL-beta and TNF in the inflammatory cells (intracellular action). Aceclofenac stimulates the synthesis of the extra cellular matrix.

All the chemicals used were of analytical grade. Two commercial samples of the drug tablets were used for assay of the drug by proposed method in formulations. Absorbance measurements were made on double beam UV-Vis spectrophotometer SL-164 Elico Ltd, with 1 cm matched quartz cells.

The European Pharmacopoeia Supplement 2000 and the British Pharmacopoeia reported HPLC methods for the determination of aceclofenac. Other methods include titrimetric[1], electrochemical[2, 3], spectrofluorometric[4] and chromatographic methods[1]. This method is economical and sensitive.

All absorbance measurements were made on a UV-spectrophotometer with 1 cm quartz cells.

Sample preparation for UV-spectrophotometric method: A weighed amount of tablet powder equivalent to 100 mg of aceclofenac was transferred into a 100 mL volumetric flask. Small amount of methanol : water mixture is taken and added to the volumetric flask. Then made up to the mark with methanol : water (50 : 50) mixture to obtain stock solution (1 mg/mL). From this stock solution, dilutions of different concentrations are prepared like 2, 4, 6, 8 and 10 μg/mL.

Standard preparation for UV-spectrophotometric method: 100 mg of pure drug was transferred to a 100 mL volumetric flask. Initially a small amount of methanol : water mixture (50 : 50) was added to dissolve the drug. Then made up to the mark with same solvent to obtain stock solution. From this stock solution, dilutions of different concentrations were made like 2, 4, 6, 8 and 10 μg/mL.

Procedure: Aliquots of standard aceclofenac were prepared in the concentration range of 2, 4, 6, 8 and 10 μg/mL and the absorbances were measured at 203 nm against a reagent blank. The calibration curve was prepared by plotting absorbance *vs.* concentration. The concentration of sample was determined from the calibration curve.

TABLE-1
OPTICAL CHARACTERISTICS

1.	Absorbance maximum	203 nm
2.	Beer's law limits (μg/mL)	0–20
3.	Correlation coefficient (R)	0.9981
4.	Slope	0.072

TABLE-2
DETERMINATION OF ACECLOFENAC IN TABLETS

No.	Sample	Label claim (mg/ tablet)	Amount found (mg/tablet)	Recovery* (%)
1.	Hifenac (INTAS)	100	99.90	99.82
2.	Zerodol (IPCA)	100	99.93	99.70

*Values are mean of five determinations.

The proposed method is the UV spectrophotometric procedure for the determination of aceclofenac from tablet dosage form. The method is very simple, accurate, sensitive and reproducible. Reproducibility of the method was validated by recovery studies, the result of which is close to 100%. Values obtained after recovery studies are given in Table-2.

REFERENCES

1. The British Pharmacopoeia, Vol. 1, p. 38 (2003).
2. The Merck Index, 13th Edn., p. 22.
3. J.R. Posac, M.D. Vazquez, M.L. Tascon, J.A. Acuna and C. dc la Fuente, *Talanta.*, **42**, 293 (1995).
4. J.A. Acuna, C. de la Fuente, M.D. Vazquez, M.L. Tascon and M.I.G. Del Rio, *Quim. Anal.*, 17, 105 (1998).

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