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FORMULATION AND *IN VITRO* EVALUATION OF ACECLOFENAC SUSTAINED RELEASED TABLET

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INTRODUCTION

The design of proper dosage regimens is an important element in accomplishing safety, stability, efficacy and convenience. Several matrix based sustained release products of aceclofenac utilizing hydrophilic and hydrophobic polymers. Polymer matrix systems have the advantages of prolonging drug release and reducing adverse effects in patients.

OBJECTIVE

In the present investigation, an attempt was made to improve the dissolution rate of Aceclofenac by preparing and evaluating sustained drug delivery system of aceclofenac tablets with different grade polymere HPMC K4M, HPMC K100 M and compared with pure drug. The prepared dispersion were evaluated for their physiochemical and dissolution characteristics.

EXPERIMENTAL METHODS

Tablets of six different formulations of matrix tablets were formulated by wet granulagtion method. The tablets were prepared by direct compression using two viscosity grades of HPMC i.e. K4M, K100M as matrix former. Initially drug and other additives (polymer and diluents) except magnesium stearate and talc were passed through 80 mesh sieve and thoroughly mixed in a polybag for 10 minutes. Then magnesium stearate and talc was added and further mixed for 5 minutes. The resulting mixture was fed into the die of 10 station tablet machine to produce matrix tablet using flat and round punches of 10 mm diameter. Each tablet contains aceclofenac BP 200mg. The tablets were evaluated for its Weight uniformity test, Swelling Index**,** hardness, friability. *In- vitro* evaluation tests is done the USP

type (II) rotating paddle method (37.0±0.5 °C, 50rpm, 900ml of phosphate buffer pH 7.4) was used to study the drug release from sustained release tablets. Samples were with drawn after pre determined time intervals and the amount of aceclofenac released was assayed with a spectrophotometer at a wavelength of 275 nm.

RESULTS AND DISCUSSION

In present investigation, aceclofenac sustained release form was preapared by wetgranulation tencique using various polymer like HPMC K4M, HPMC K100M.All the tablets conating six different formulations were evaluated for its Weight uniformity test, Swelling Index**,** hardness, friability. The *in vitro* dissoulution strudy of pure drug shows (58.80%) drug release, and formulations contationg HPMC K4M shows (78.6%) and formulation containing HPMC K100M shows (51.02%). The formulation f6 shows lowest dissolution rate I.e (51.02 %) in 8 hours comapered to other formulation.

Table – 1.

Forulation Code	% DR (in minutes)
Pure Drug	58.80
F 1	76.88
F 2	73.11
F 3	68.26
F 4	63.46
F 5	48.86
F 6	51.02

CONCLUSION

The results indicate that it is feasible to achieve a stable ‘once daily’ sustained release aceclofenac tablet formulation by using HPMC K4M viscosity grade as matrix material. The dissolution of all the preparation follows Higuchi order release kinetics with non–fickian diffusion mechanism.

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