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To Study Of Formulation And Estimation Of Aceclofenac Topical Emulgel.

Karishma Yadav, Piyush Yadav*, and Shashikant Maury.

Prasad Institute Of Technology, Department Of Pharmacy, Jaunpur – 222001, Uttar Pradesh, India.

ABSTRACT

Aceclofenac is an improved non steroidal anti-inflammatory drug posses a curious. Anti - inflammatory drug, analgesic and antipyretic effects. Chemically it is also called as phenyl acetoxia acetic acid. Aceclofenac is used in the treatment of rheumatoid arthritis osteoarthritis. In NDDS emulgel is latest technology used for the controlled release of gel for topical used. Basically this review article based on design and formulation on aceclofenac topical emulgel and also performed the estimation parameters (a rough calculation of value, quantity number). The most important recent spectrophotometric methods for analyzing Aceclofenac in pure formulation, in various dosage forms and organic fluids published in the literature to date. Includes spectrophotometry, high liquid chromatography performance, high layer chromatography performance, liquid chromatography-mass spectrometry, ultra high-performance liquid chromatography, mass spectrometry, and stabilization methods.

Keywords: Aceclofenac, carbopol934, emulgel, topical osteoarthritis.

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**Corresponding author*

INTRODUCTION

Topical emulgel preparation is an important and most popular dosage form results the curative effect of drug achieve completely. The non steroidal anti-inflammatory drug is mostly used in the management of the rheumatoid arthritis. But these drugs have the risk of gastrointestinal irritation and also the systemic side effect. As usual oral administration. Considering the activity near all the inflammatory disease occur near the surface of the body.

- Aceclofenac is a non steroidal anti inflammatory drug (NSAIDS) which produce anti pyretic, analgesic and anti inflammatory effect. Aceclofenac inhibit the synthesis of prostaglandin.

It is significant inhibitor of enzyme cyclooxygenase, this enzyme include in the production of prostaglandins and contain anti inflammatory and analgesic activity. Generally used in the treatment of joints related disease and ostetoarthritis [1].

Impact of aceclofenac on body system

- Intraleukin inhibition
- Cytokine inhibition
- Cox inhibition
- Synthesis of glycosaminoglycan
- Inhibition of tumor necrosis factor
- Decreased production of nitrous oxide
- Effect on adhesion molecules from neutrophils

Aceclofenac may be usually used as a NSAIDS. Etorocoxib and aceclofenac both are comparatively power full in decline the anguish forch and functioning on the useful ability in comprehensive low back torment.

The topical root of drug delivery system has get demand because it escapes gastrointestinal Irritation and avoids first pass effect [2].

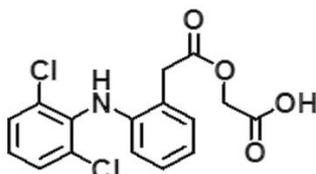


Figure 1: structure of aceclofenac

Topical drug delivery includes two basic types of product [2-4]

External topical: this type of topical agent spread spray or in other way display on to cutaneous tissues to completely cover the affected area.

Internal topical: Internal topical that are applied for local effect to mucous in membrane orally, vaginally and rectal use.

Factor effecting topical absorption of drug physiochemical factor

- Molecular weight (<400 dalton)
- Partition coefficient
- Effect of vehicles
- Degree of ionization

Physiological factor

- Blood flow
- Density of hair fall follicles
- Density of sweat gland
- Lipid content
- Skin thickness
- Hydration of skin
- Inflammation of skin

Advantage of topical drug delivery system

1. Improve patient compliance
2. Suitability for self medication
3. Avoidance of first pass metabolism
4. Avoidance incompatibility of the gastrointestinal

Disadvantage of topical drug delivery system

1. Poor permeability of some drug through skin
2. Possibility of allergic reaction
3. Drug of large particle size arc not easy to absorb through the skin
4. Skin irritation on contact dermatitis.

Table 1: Formulation design for aceclofenacemulgel preparation

INGREDIENTS (%W/W)	F1	F2	F3	F4	F5	F6	F7	F8
Cabopol 934	0.5	0.5	0.5	0.5	-	-	-	-
HPMC K15M	-	-	-	-	0.25	0.25	0.25	0.25
PURIFAID WATRER	q.s	q.s	q.s	q.s	q.s	q.s	q.s	q.s

Method of formulation [5]

- **To experimental requirement:**-various equipment, instrument and material are use for the formulation and estimation of drug.
- Carbopol 934,tween 80,span 80 Aceclofenac, ethanol, clove oil ,methyl paraben
- Magnetic stirrer,spectrophotometer, digital balance ,compound microscope ,pH meter ,dessionolution test apparatus.

Identification of aceclofenac

For the study of the preformulation the micronise is a form of aceclofenac and this is related to physical test.

Preformulation study

Preformulation study are use for the development of emulgent before the starting of plane advancement and the significant objective of the inquiry is to create are faster study ,safe and restoratively strong and effective dose frame that are essentially recognize along with the part royal physicochemical criteria of the medication substance [6].

Before the product development measure aim of product development is

- In drug congeniality determination different recipients used in the formulation.
- To establish charecterstics physicochemical nature of the drug [7].

Compatibility study of drug excipients

For The development of pharmaceutical formulations its required to check the drug additive compatibility.Using this study various microscope property were recognise tests of drug excipient compatibility give assured of the formulations of study the active pharmaceutical ingredients are mixed with KBr on FT-IR spectra were plotted .disappearance of aceclofenac of aceclofenac was examined peak in spectra [8].

Table 2: Ingredients and drug excipient ratio

S.NO.	INGREDIENTS	DRUG EXCIPIENTS RATIO
1	SPAN 20	1:1
2	TWEEN 20	1:1
3	LIQUID PARAFFIN	1:1
4	PROPYLENE GLYCOL	1:1
5	METHYL PARABEN	1:1
6	CARBOPOL	1:1
7	MENTHOL	1:1
8	HPMC K4M	1:1
9	PURIFIED WATER	1:1

Estimation of aceclofinacemulgel

Analytical method

Many different analytical methods have been reported to estimate the ACECLOFEANC (ACE) inbulk and dosage form as well as in biological fluids.2222

Validation prameter of uv spectroscopy

Specifies stability-reflecting spectrophotometric determination of aceclofenac using multivariate measurements using phosphate buffer pH 6 as solvent.

Certified UV spectrophotometric methods for Aceclofenac quantity and chemical formulation using methanol and water (40: 60) as a solvent system.

Describes the validation of the UV spectroscopic analysis method to test and disperse the aceclofenac tablet using methanol for testing and phosphate buffer pH 6.8 dissolving as solvent. High absorption was observed at 276 nm with a linear range of 0-120 µg / mL [9].

Table 3: validation parameter of uv spectroscopy [Valambhia,K.R.et al.]

Validation	Reading Observed
Regression	Y=0.003x+0.006
R2	0.9997
Slope	0.0036
Intercept	0.0062

Explored simple spectrophotometric methods for measuring aceclofenac from mass and composition using pdimethylaminocinnamaldehyde (PDAC) and 3-Methyl-2-benzothiazolinone hydrazine hydrochloride (MBTH). The two routes were developed using PDAC and MBTH at detection at 658 nm and 592 nm, respectively. The law of beer complied with a concentration of 1-200 and 1-100 µg / mL.decided a proven spectroscopic method of measuring Aceclofenac from tablet formulation using phosphate buffer pH 7.4 as a solvent. The detection was performed at 273 nm and the line was obtained at a concentration level of 0–20 µg / mL [10].

Table 4: Summary of uvspectroscopy[Shah,R,et al.]

Parameter	Reading Observed
R2	0.9998
Slope	0.025052
Intercept	0.025141

Validation parameter of colorimetry method

Investigate the development of colorimetric method and confirmation of Aceclofenac dosage in bulk and commercial composition. In this way, ceric ammonium sulphate is used for Aceclofenac, in large quantities in the presence of sulfuric acid. The remaining amount of oxidizing agents oxidizes the normal amount of crystal violet that produces a violet color. Absorbance maxima were detected at 585 nm. The linear diameter found was 18µg / mLdrug, respectively [11].

HPTLC Method

It has been discussed that the high performance of Aceclofenac chromatographic estimates in bulk and drug dosage forms using silica gel 60F254 as a standing phase. Hexane, chloroform and methanol (6: 2: 2 v / v) were used as the moving phase. The Rf value was 0.3 and measured the acquisition wavelength of 271 nm [12].

Table 5: validation parameter of HPTLC [William H,et al.]

Parameter	Reading Observed
Intercept	0.497
R2	0.999
Slop	0.996
Recovery	99.06 - 101.03

HPLC-MS Method

Describes the development and validation of the high chromatography of liquid Tandem mass spectrometric method for measuring Aceclofenac in human plasma at a concentration level of 0.106-14.060 µg / mL. Separation was performed using a pH bath 6.8 with acetonitrile and a C18 column (4.6 X 50 mm, 50 µm, 60 A0) with a flow rate of 0.350 mL / min. Last time was 1.20 and 1.21 minutes, respectively [13].

Table 6: validation parameter summary of HPLC- MS [Reddy SR et al.] [14]

Parameter	Reading Observed
Sensitivity	0.5&100.3%
R2	0.999
Precision	2.1- 6.8
% Recovery	95.5- 103.8

CONCLUSION

From above result I can conclude that aceclofenac emulgenl formulated to pair with Carbopol NaCMC, HPMC and sodium alginate showed acceptable physical properties concerning homogeneity, spreadability colour consistency and value. Tween 80 a emulsifying agent in preparation enhance propylene glycol are used for all formulation in vitro dissolution carried out for 6 hour.

Topical emulgel formulation C3 i.e. contain hundred gram of carbon pole 234 expose excellent drug release with 90% of better drug contents. In comparison to other formulation that formulations also found to be stable. Formulation of c3 display more release, consequently these formulations of was used as improved formulation after oil emulgel had recognised as a freak and novel technique for the topic drug delivery. Accordingly it can be very effectual for hydrophobic drug.The analytical methods reported in the ACE measurement books not only in quantity, composition of medicine but also in matriculation

biology. Analysis of the analytical data revealed that HPLC methods and UV methods were the best in Aceclofinac dosage alone or compounds.

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