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FORMULATION AND EVALUATION OF ORODISPERSIBLE TABLETS OF ETORICOXIB USING NATURAL SUPER DISINTEGRANT

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ABSTRACT

The present study was undertaken to formulate and evaluate orodispersible tablets of Etoricoxib using a natural superdisintegrant. Etoricoxib is a selective COX-2 inhibitor used for the management of pain and inflammation. Conventional tablets may be difficult to swallow for certain patients; therefore, orodispersible tablets offer a convenient alternative by rapidly disintegrating in the oral cavity in the presence of saliva without the need for water. In the present investigation, Gum karaya was selected as a natural superdisintegrant because of its availability, economical nature, biocompatibility and biodegradability. The tablets were prepared by the direct compression method using suitable excipients and varying concentrations of superdisintegrants. Preformulation studies and drug–excipient compatibility studies were carried out before formulation. The prepared tablets were evaluated for physical parameters such as hardness, thickness, friability and weight variation, along with wetting time, disintegration time, *in-vitro* dispersion, water absorption ratio, assay and *in-vitro* dissolution studies. The optimized formulation showed satisfactory tabletting properties and acceptable drug content. The assay of the prepared formulations was found to be within the prescribed pharmacopoeial limits. Stability studies of the optimized formulation were also performed. The study indicates that Gum karaya can be effectively explored as a natural superdisintegrant for developing Etoricoxib orodispersible tablets with rapid disintegration and satisfactory drug-release characteristics.

KEYWORDS: Etoricoxib, Orodispersible tablets, Gum karaya, Natural superdisintegrant, Direct compression, Disintegration time, Dissolution, Drug delivery.

INTRODUCTION

Oral forms of solid pharmaceuticals include tablets, capsules, powders, pills, and cachets. These dosage forms are collectively referred to as solid unit dosage forms because they contain a quantity of drug that is taken as a single unit, even in the case of sustained action preparations, which theoretically contains the equivalent of numerous conventional doses of medication.

Tablets are a traditional solid dose type that has numerous superiority over alternative dosing forms.

According to the Indian Pharmacopoeia Pharmaceutical tablets are solid, flat or biconvex dishes, unit dosage form, prepared by compressing a drugs or a mixture of drugs, with or without diluents. Tablet is defined as a compressed solid dosage form containing medicaments with or without excipients. They vary in shape and differ greatly in size and weight, depending on amount of medicinal substances and the intended mode of administration.

The stringent formulation requirements of modern Medicaments, the many advantages of tablet and capsule medication, coupled With expanding health services and the commitment need for large- scale Economic manufacture, have led to a steady decline in the prescribing of powders Andpills. Tablets and capsules, on the other hand, currently account for well over Two third of the total number and cost of medicines produced all over the world. Tablets are solid dosage form which is the conventional as well as have many advantages over other dosage forms. Tablets are the most popular dosage form;about 70% of the total medicines are dispensed in the form of tablet. Tablets had different shapes, sizes, as well as weight depending on medicinal substances and the intended mode of administration.

The tablet is one of the most preferred dosage forms. Disintegrants are agents integrated to tablet and some encapsulated formulations to promote the breakup of the tablet and capsule "slugs" into more small fragments in an aqueous environment thereby incrementing the available surface area and promoting a more rapid release of the drug substance. They promote moisture penetration and dispersion of the tablet matrix. Tablet disintegration has received considerable attention as an essential step in obtaining fast drug release. The accentu-ation on the availability of drug highlights the importance of the relatively rapid disintegration of a tablet as a criterion for ascertaining uninhibited drug dissolution behavior. Number of factors affects the disintegration replace of tablets. The disintegrants have the major function to oppose the efficiency of the tablet binder and the physical forces that act under compression to compose the tablet. The more strong the binder, the more efficacious must be the disintegrating agents in order for the tablet to release its medication. Ideally, it should cause the tablet to disrupt, not only into the granules from which it was compressed, but additionally into powder particles from which the granulation was yare. Disintegrants are an essential component to tablet formulations. The ability to interact strongly with water is essential to disintegrate function.

Conventionally not as efficacious as that integrated extragranularly due to the fact that it is exposed to wetting and drying (as a component of the granu-lation process), which reduces the activity of the disintegrant. Since a compaction process does not involve its exposure to wetting and drying, the disintegrant used intragranularly inclines to retain good disintegration activity. The polymers obtained from the natural inchoation are more efficacious and safe.

The most important drug delivery route is undoubtedly the oral route. It offers advantages of convenience of administration and potential manufacturing cost savings. Drugs that are administered orally, solid oral dosage forms in general and tablets in particular represent the preferred class of product.[4] Today drug delivery companies are focusing on solid oral drug delivery systems that offer greater patient compliance and effective dosages. Some of the problems associated with tablets particularly by paediatric and geriatric patients, people who are ill in bed and to those active working patients who are busy or traveling, especially those who have no access to water.[5] Over a decade, the demand for development of orally disintegrating tablets (ODTs) has enormously increased as it has significant impact on the patient compliance. Orally disintegrating tablets offer an advantage for populations who have difficulty in swallowing. ODTs with good taste and flavor increase the acceptability of bitter drugs by various groups of population. Orally disintegrating tablets are also called as orodispersible tablets, quick disintegrating tablets, mouth dissolving tablets, fast disintegrating tablets, fast dissolving tablets, rapid dissolving tablets, porous tablets, and rapimelts. However, of all the above terms, United States pharmacopoeia (USP) approved these dosage forms as ODTs.

Food and Drug Administration (FDA) defined ODT as "A solid dosage form containing medicinal substance or active ingredient which disintegrates rapidly usually within a matter of seconds when placed upon the tongue."

ADVANTAGES

1) Tablets are the most effective oral dose form. Use the most precise dosage form with minimal content variability.
2) They are simple and inexpensive to package and strip.
3) Low-cost, lighter and more compact.
4) Superior chemical and microbiological stability across all oral dose formulations.
5) Fit for mass manufacturing.
6) Easy to swallow, Easy to handle.
7) A coating process can cover up an unpleasant taste and odour.
8) Enteric coating enables a substance with sustained release.

DISADVANTAGES

1) Children and unconscious patients may find it difficult to swallow.
2) Due to their low density and amorphous nature, a number of drugs are hard to compression into dense compacts
3) It may be challenging to create or produce a tablet that will nevertheless give sufficient or complete drug bioavailability for medications with poor wetting, slow dissolution characteristics, and high GIT optimal absorption.
4) Drugs that test bitter, have an unpleasant smell, or are oxygen-sensitive may need to be coated or encapsulated. In these situations, capsules could be the finest and most affordable option.
5) Certain substances, like aspirin, have irritating effects on the GI mucosa.
6) The potential for bioavailability issues brought on by sluggish breakdown and disintegration. Some drugs resist compression into dense compacts, owing to their amorphous nature or flocculent, low density character.
7) Drugs with poor wetting slow dissolution properties, intermediate to large dosage, optimum absorption high in the gastro intestinal tract, or any combination of this features may be difficult or impossible to formulate and manufacture as a tablet that will still provide adequate or full drug bioavailability.
8) Bitter – tasting drugs, drugs with an objectionable odour, or drug that are sensitive to oxygen or atmospheric moisture may require encapsulation or entrapment prior to compression, or the tablet may require coating. In such cases, the capsules may offer best and lowest cost approach.

MATERIALS AND METHODS

Materials

The Etoricoxib was purchased from Strides Pharma Private Ltd, Gum karaya was purchased in Dhamtec Pharma. Mannitol was purchased in Narvon Pharma Private Ltd. Croscarmellose sodium, Crosspovidone, Talc, Magnesium stearate was purchased from Dhamtec Pharma Private Ltd. All the Solvents and Reagents were used as Analytical grade.

Methods

Etoricoxib (1000 µg/ml) was prepared by dissolving 10 mg of etoricoxib in 10 ml of PBS pH 7.0 with vigorous shaking. 1ml of this standard stock solution was transferred to a 10 ml volumetric flask and diluted to volume with PBS pH 7.0 to obtain a working concentration of 100 µg/ml.

Subsquently 1 ml of this solution was diluted to 10 ml with PBS pH 7.0 to achieve a final concentration of 10 µg/ml. This solution was then scanned at 200 – 400 nm in UV- Visible Spectrophotometer to attain the absorption maximum (λ max).

Fourier Transform Infrared Spectroscopy

The FT-IR studies are carried out for pure Etoricoxib raw material, superdisintegrant (Kyron T-314) and combination of drug and superdisintegrant (Etoricoxib + Gum Karaya) were carried out to find any interaction between drug and excipients used in the formulation. The study was carried out by IR Spectroscopy (SHIMADZU).

METHOD OF PREPARATION

Direct Compression Method Sieving

The active ingredient was passed through the sieve #40. The other ingredients given in the formulation table were passed separately through the same sieve. Dry mixing all the materials (including the active ingredient) were taken in poly bag and mixed for 10 minutes.

Lubrication

The magnesium stearate was passed through the sieve #60 and mixed together with the powder mixture in a poly bag for 5 minutes to get a uniform blend.

Compression

Finally, the powder mixture was compressed into tablets using rotary tablet compression machine.

DIRECT COMPRESSION METHOD

Oro dispersible tablets of Etoricoxib were prepared by direct compression method. Weighed all the ingredients accurately according to the table. All the ingredients were mixed step by step with drug and trituration was continued for 15 minutes then passed through sieve no 60. Subsequently talc, magnesium sterate mixed at last & again mixed. The powder was compressed using multi station tablet punching machine with 8 mm flat punch. Tooling and corresponding dies.

S.NO.	F1	F2	F3	F4	F5	F6	F7	F8	F9
DRUG(mg)	30	30	30	30	30	30	30	30	30
CSP(mg)	30	30	30	40	40	40	50	50	50
GUM KARYA(mg)	4	6	8	10	12	14	16	18	20
MC(mg)	120	120	120	120	120	120	120	120	120
MS(mg)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
TALC(mg)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
MANNITOL(mg)	40	40	40	40	40	40	40	40	40

POST COMPRESSION PARAMETERS

The compressed tablets were evaluated for the following parameters.

GENERAL APPEARANCE

The tablet should be free from cracks, depressions, pinholes etc. The colour and polish of the tablets should be uniform on whole surface. The surface of the tablets should be smooth. The tablets were examined externally under a biconvex lens for surface cracks depression and pinholes.

HARDNESS TEST

The strength of a tablet to stand against applied load/pressure is known as hardness. It is also known as crushing strength. Randomly take 5-10 tablets from prepared batch and hardness should be determined by crushing the tablet by hardness tester and then find out the average and standard deviation. Hardness is determined by using hardness tester (Monsanto). The value of hardness was calculated in kg/cm^2

THICKNESS

Twenty tablets from the sample were randomly taken and individual tablet thickness was measured using digital Vernier calipher. Average thickness and standard deviation values were calculated. The thickness was denoted in mm.

FRIABILITY

Friability is to measure the extent of tablet breakage during physical stress conditions like packaging, transportation etc. A sample of randomly selected 6 tablets was evaluated for friability using Roche friabilator at 25rpm for 4 minutes. The %weight loss is calculated by measuring the total weight of 6 tablets before and after operation. Formula for calculating the % weight loss is given below.

$$\%\ Friability = \frac{Initial\ weight - Final\ weight}{Initial\ weight} \times 100$$

WEIGHT VARIATION TEST

To study weight variation, 20 tablets of each formulation were weighed using an electronic balance, average weights was calculated, individual tablet weights were compared with the average weight. Not more than two individual weights deviate from the average weight by more than the percentage deviation and none should deviate by more than twice that percentage.

$$\%\ Deviation = \frac{Average\ weight - Tablet\ weight}{Average\ weight} \times 100$$

Average weight of tablets (mg) in I. P	Percentage deviation
130 or less	±10
130 – 324	±7.5
More than 324	±5

***IN- VITRO* DISPERSION TIME**

The wetting time of the tablets was measured using a simple procedure. A piece of tissue paper folded twice was placed in a small petri dish of 6.5cm in diameter containing 6ml of water. A pre-weighed tablet was placed on the surface of tissue paper and allowed to completely wet. The time required for water to reach the upper surface of the tablet and to completely wet it was noted as the wetting time. The wetted tablet was then weighed

WATER ABSORPTION RATIO

A Piece of tissue paper folded twice was placed in a small petri dish 6.5 cm in diameter The wetted tablet was then weighed. Water absorption ratio (R) was determined using the following equation.

$$R = \frac{Wa - Wb}{Wb} \times 100$$

Where

Wb = Weight of tablet before wetting Wa =Weight of tablet after wetting

DISINTEGRATION TEST

Disintegration test was carried out at 37°C ± 2°C. Tablets were taken and introduced in each tube of disintegration apparatus, and the tablet rack of the disintegration apparatus was positioned into a 1 litre beaker containing 900 ml of distilled water and the disc was not used for the study. The time taken for complete disintegration of the tablets with no palpable mass remaining in the apparatus was measured.

IN VITRO DISSOLUTION STUDIES

The in vitro dissolution studies of Etorcoxib orally disintegrating tablets were performed using USP dissolution apparatus employing a paddle stirrer at 50 rpm using 900 ml of pH 7 phosphate buffer at 37±0.5°C as dissolution medium. One tablet was placed in each jar of dissolution apparatus. 5 ml of sample from each jar was withdrawn at every 5 minutes interval up to 30 minutes and same volume of pH 7 Phosphate buffer was replaced to each dissolution jar, so that the volume of dissolution medium was maintained at 900 ml. Then the sample was filtered and diluted with pH 7 phosphate buffer. The amount of Etoricoxib released from orally disintegrating tablets was determined spectrophotometrically at 233 nm using 7 phosphate buffer as blank.

FINENESS OF DISPERSION

The fineness of dispersion test was done by using two tablets in 100 ml water and stir gently until completely dispensed. The smooth dispersion obtained was passed through a sieve screen with a nominal mesh aperture of 710 nm (Sieve #21).

RESULTS AND DISCUSSION

1. Organoleptic Properties of drug

A) Colour

A white colour powder

2. Melting point

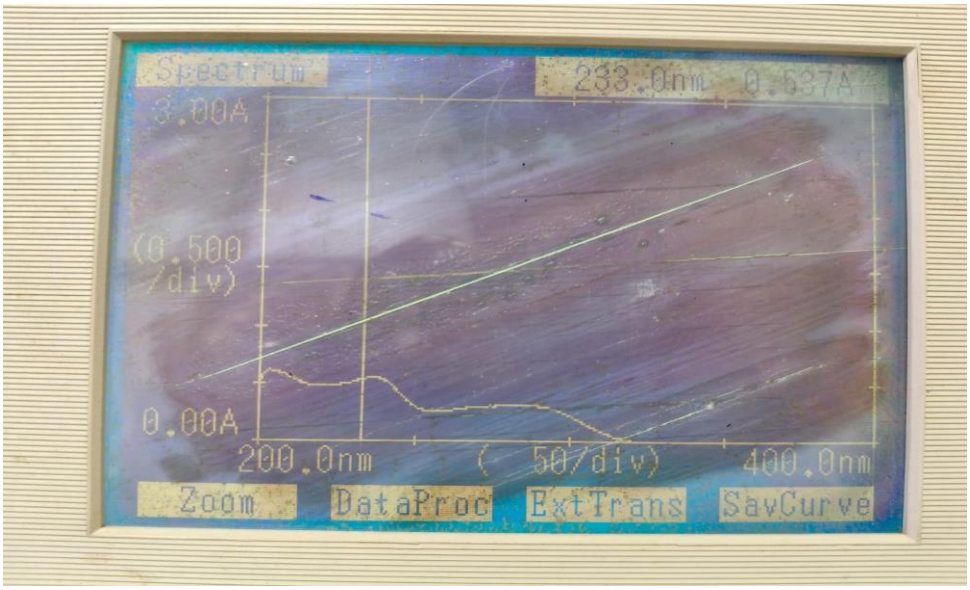
This method is involve in placing the sample in a capillary tube and running an experiment that will heat the sample until reaches is melting point.

STANDARD VALUE	OBSEREVED
133°C to	138°

SOLUBILITY PROFILE

Solvent	Solubility
Water	Sparingly soluble
0.1N Hcl	Freely soluble
Methanol	Soluble
Acetone	Soluble
Chloroform	Freely soluble
Ethylacetate	soluble
Ethanol	soluble
Dimethylformamide	Freely soluble

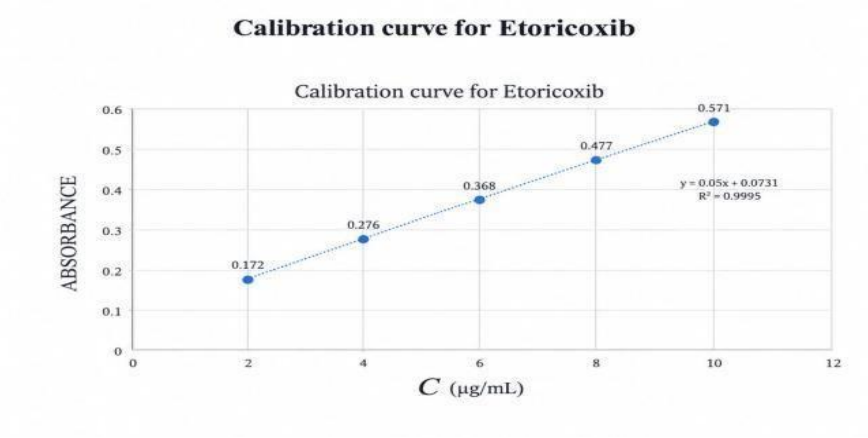
DETERMINATION OF λ MAX FOR ETORICOXIB



CALIBRATION CURVE

The wavelength of maximum absorbance (λ max) of Etoricoxib was obtained at 248nm with 0.1 HCL. The calibration curve was found to be linear in the range of 2-10 µg/ml. And straight line equation was obtained and having regression coefficient value of 0.9995.

S.NO	COCENTRATION (µg/ml)	ABSORBANCE
1	2	0.172
2	4	0.276
3	6	0.368
4	8	0.477
5	10	0.57



FT-IR FOR DRUG ETORICOXIB

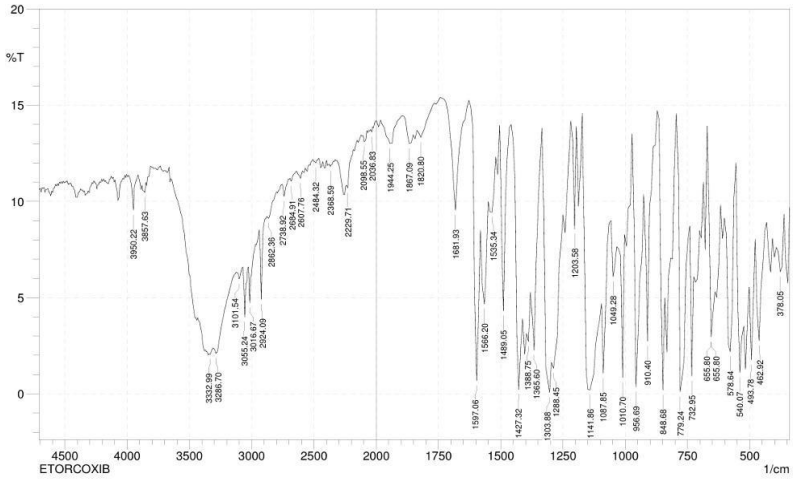


Fig 8 : FT-IR Spectrum for Etoricoxib Pure Drug

Interpreation	Wave number
N-H Stretching	3333
C-H Stretching	3102
Aliphatic C-H Stretching	2924
C=O Stretching	1682

PRE COMPRESSION PARAMETERS MICROMERITIC PROPERTIES

The powder blends are evaluated for the micromeritic properties such as angle of repose, bulk density, tapped density, compressibility index and Hausner's ratio. The results are given in the below table,

Formulation code	F1	F2	F3	F4	F5	F6	F7	F8	F9
Angle of Repose	$29^0 24'$	$29^0 94'$	$34^0 79'$	$35^0 75'$	$38^0 65'$	$36^0 86'$	$47^0 20'$	$34^0 68'$	$40^0 03'$
Bulk Density	0.481	0.458	0.472	0.502	0.461	0.501	0.511	0.485	0.467
Tapped Density	0.592	0.644	0.574	0.628	0.553	0.586	0.575	0.606	0.596
Carr's index	18.75	28.80	17.70	20.00	16.60	14.50	11.10	19.90	21.60
Hausner's ratio	1.23	1.40	1.21	1.25	1.19	1.16	1.12	1.24	1.27

DISCUSSION

The angle of repose of Formulation I was found to be $47^{0}20'$ which indicates excellent flow property and the angle of repose of other formulations was found between $29^{0}24$ and $47^{0}20'$ which indicates excellent flow property. The bulk density was found to be between 0.481 to 0.511 g/cm3, the tapped density was found to be between 0.533 to 0.644 g/cm3, the compressibility index was found in the range of 11.10% to 28.80 and the Hausner's ratio lies between 1.23 TO 1.27 The above results in the term of micromeritic properties reveals that the flow property of the Formulation-I was good and other was fair.

POST COMPRESSION PARAMETERS GENERAL APPEARANCE

The general appearance of all the formulations (F-I to F-IV) were examined and found as follows

Colour	A white colour
Shape	white
surface	odourless
Cracks, depressions, pinholes	unpleasant

OTHER PARAMETERS

Formulation code	Thickness	Hardness	Weight Varitation	Friability
F1	3.8	3.4	237	0.975
F2	3.4	2.6	224	0.519
F3	3.6	3.8	245	0.200
F4	3.3	3.5	222	0.644
F5	3.7	3.7	244	0.768
F6	3.9	3.3	243	0.495
F7	3.5	3.9	246	0.799
F8	4.3	3.6	240	0.655
F9	3.4	2.8	243	0.564

DISCUSSION

The thickness of the tablets was measured and it was found in the range between 3.8 and 3.4 mm.

All the formulations are under uniform thickness. The hardness of the tablets was measured and it was found in the range between 3.4 and 4.8 kg/cm2 and the tablets possess good mechanical strength and sufficient hardness.

All the formulations of the Etoricoxib oral fast dissolving tablets passed the weight variation test and the values are within the acceptable limit.

The friability percentage values of the Etoricoxib oro-dispersible tablets shows less than 1% weight loss and is within the limit. Hence all the tablets passed the friability test.

EVALUATION OF ETORICOXIB ORODISPERSIBLE TABLETS

Disintegration test, Water Absorption Ratio, Wetting time, *In-Vitro* Dispersion time.

	Disintegration test	Water Absorptio n Ratio	Wetting Time	In Vitro Dispersion time	Fineness of Dispersion
F1	45	68.1%	28.64	5	Passed
F2	50	48.5%	25.78	10	Passed
F3	40	37.5%	23.05	15	Passed
F4	30	52.5%	24.54	20	Passed
F5	44	55.6%	25.51	30	Passed
F6	40	60.6%	21.07	40	Passed
F7	43	66.6%	20.06	50	Passed
F8	39	55.9%	18.21	65	Passed
F9	40	62.3%	17.72	70	Passed

DISCUSSION

Disintegration time of Etoricoxiboro-dispersible tablets ranges between 45 to 40 seconds. As per I.P the disintegration time limit is 30 seconds.

Our Formulation I shows least disintegration time (45 sec) compared with other formulations. Wetting time of Etoroicoxiboro-dispersible tablets ranges between 17 to 28 seconds.

Formulation I prepared using gum karya shows least wetting time (17.72 sec) In Vitro dispersion time of Etorocoxcib oro-dispersible tablets ranges between 5 to 70 seconds.

Formulation I prepared using gum karaya shows rapid dispersion (40 sec) In fineness of dispersion test, the dispersion of all the formulations are passes through the sieve #22 and passes the test.

From the above results, it was concluded that the formulation F-9 shows better tabletting properties compared to the other formulations and selected as the best formulation.

ASSAY OF ETORICOXIB BY UV SPECTROSCOPY METHOD

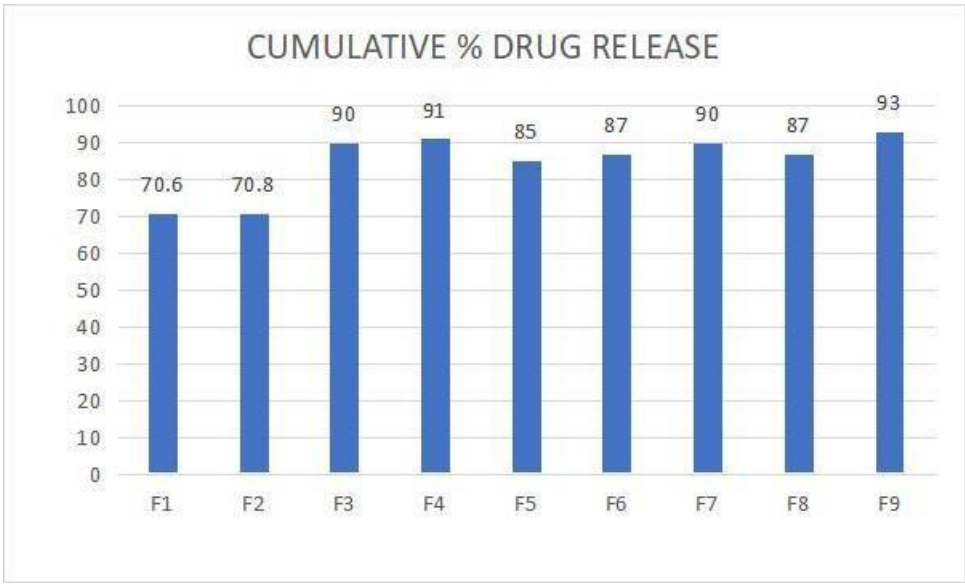
The assay of Etoricoxib tablets was done by UV spectroscopy method as per the procedure given in the methodology. The assay values of the Etoricoxib Orodispersible tablets are given in the below table.

Formulation code	Limit	Assay
F1	90- 110%	84.58%
F2		92.58%
F3		94.38%
F4		101.58%
F5		103.28%
F6		91.18%
F7		89.38%
F8		95.38%
F9		99.18%

IN VITRO DISSOLUTION STUDIES

The In Vitro drug release of the Etoricoxib oro-dispersible tablets were given in the table.

Time(mins)	Percentage Drurg Relese								
	F1	F2	F3	F4	F5	F6	F7	F8	F9
5	8.6	10.4	13.1	12.5	11.8	11.5	12	11.7	12.3
10	12.1	22.2	18.5	20.8	18.2	20.1	21.5	20.3	21
15	20.3	30.4	40.7	36.5	34.6	35.8	37.2	35.6	37.8
20	35	46	55.8	53.1	50.9	51.6	53.8	51.8	54.6
25	56.6	65.5	77.6	75.2	69.7	70.4	72.1	70.2	73
30	70.6	70.8	93	95	85	87	90	87	93



DISCUSSION

The assay of Etoricoxib orodispersible tablets were found in the range between 84.58% and 103.28%. As per I.P the acceptable limit of the Etoricoxib orodispersible tablets is 90 to 110 %. The above results revealed that the assay of Etoricoxib was within the acceptable limits.

DISCUSSION

The drug release of formulation F1 - F9 was found to be 70.06%, 70.8%, 90%, 91%, 85%, 87%, 90%, 87%, 93%,. at 30 minutes.

The acceptable limit of *in vitro* dissolution is NLT 80% of drug release at 10 minutes. All the formulations are passed the in vitro dissolution studies. The higher dissolution rates was observed in F-1 and F-9 using Gum karya and Cross povidone as superdisintegrant due to rapid disintegration and fine dispersion of particles after disintegration.

The formulation F-I prepared using Gum karya as superdisintegrant shows higher drug release due to highly porous structure of the superdisintegrant with direct compressible vehicle (Micro Crystalline Cellulose) which facilitates faster water uptake, faster disintegration, easy breakdown of the particles and rapid dissolution.

Order of enhancement of the dissolution rate with various superdisintegrants was found to be Gum karya > Cross Povidone > Cross carmellose sodium > Sodium starch glycolate. By the above results, Formulation I was observed as optimized formulation based on rapid disintegration time, wetting time, *in vitro* dispersion time and dissolution profile.

STABILITY STUDIES

The stability study was carried out for optimized formulation (F-I) and it was stored at stored at 25 ± 2°C/60% ± 5% RH and 40 ± 2°C/75% ± 5% RH for a period of three months. The tablets were evaluated for various parameters like physical appearance, average weight, thickness, hardness, friability, disintegration, in vitro dispersion, fineness of dispersion, dissolution and assay at every one month interval.

SUMMARY

The present study was undertaken to formulate Etoricoxib Oral Dispersible Tablets by direct compression method using various superdisintegrants such as, Sodium starch glycolate, Crosscarmellose sodium and Crosspovidone. A total of four formulations (F-1 to F-9) of Etoricoxib Dispersible tablets were prepared by direct compression method. All the formulations were evaluated for both pre compression and post compression parameters as per the requirements of standards. Preformulation study of API such as organoleptic properties, solubility, compatibility study and FT- IR drug - excipients interaction study were carried out. The prepared blends were also evaluated for precompression parameters such as angle of repose, bulk density, tapped density, compressibility index and hausner's ratio. The prepared tablets were evaluated for post compression parameters such as thickness, hardness, weight variation, friability, disintegration, wetting time, water absorption ratio, taste evaluation, assay and in vitro drug.

From the experimental results the following points can be summarized.

In the pre-formulation study Etoricoxib showed similar color, taste and odor as per the I.P specification.

- The results of drug excipients compatibility study showed that the excipients selected for the formulation were compatible with the API and suitable for formulation development.
- FT- IR spectral studies of pure drug and drug with excipients showed that there was no interaction between the drug and excipients used in the formulation.
- The results of micromeritic properties indicate that the flow property of formulation F-I showed better flow property compared with other formulations.
- All formulations possessed uniform thickness. The prepared tablets also possessed good mechanical strength with sufficient hardness.
- All formulations of Etoricoxib Oral Dispersible tablets passed the weight variation test since the values are within the acceptable variation limit (±5.0) of the tablet. All formulations of Etoricoxib Oral Dispersible tablets showed less than 1% weight loss and passed the friability test.
- Disintegration time of Etoricoxib Oral Dispersible tablets were found between 30to 40minutes. Formulation F-1 & F-9 showed least disintegration time (30±1.52, 39±1.52 sec) compared with all other formulations.
- Wetting time and water absorption ratio of Etoricoxib Oral Dispersible tablets were found to be in the range between 17 to 28 seconds and respectively. Formulation F-1 and F-9 prepared using and crospovidone as superdisintegrant showed least wetting time (17 and 18 sec).
- In vitro Dispersion time of Etoricoxib Oral Dispersible tablet of Formulation-I was found to be (27±1.52) and Fineness of Dispersion of All Formulation was passed the test.
- The content of Etoricoxib in Oral Dispersible tablets were found within the acceptable limits. (90-110%).
- In the in vitro drug release study, formulation F-9 prepared using gum karya as superdisintegrant showed maximum drug release (95%) at the end of 30 minutes. The obtained data suggested that formulation (F-9) containing gum karya disintegrant showed better disintegration time, wetting time and in vitro drug release and hence formulation F-9 was considered as the optimized formulation based on rapid disintegration time, wetting time and in vitro drug release.

CONCLUSION

From this study, the overall results revealed that the Formulation F-1 and F-9 contains gum karya and Cross povidone as superdisintegrants F-9 gives better results when compared to other formulations. Despite that, gum karya which gives maximum drug release. The work

concluded that the Etoricoxib Oral dispersible tablets could be successfully formulated by direct compression method using various superdisintegrants in same concentration. The Formulation F-9 which contains gum karya as superdisintegrant may enhance the dissolution rate, provides convenience administration, patient compliance and therapeutic effectiveness and which effectively treat nausea and vomiting caused by cytotoxic agents. From the above observation, it was concluded that the Formulation F-9 containing gum karya as superdisintegrant was found to be better one compared to the other formulations.

BIBLIOGRAPHY

1. Rakesh Pahwa and Nisha Gupta. Superdisintegrants in the development of orally disintegrating tablets: A Review, IJSPR, 2011; 11: 2767-2780.
2. Ramakant Joshi, Navneet Garud and Wasim Akram. Fast dissolving tablets: A Review, IJSPR, 2020; (4): 1562-1570
3. Savita D, Mishra Dinesh. Design and assessment of Losartan Potassium oro dispersible tablets using modernistic versatile co-processed superdisintegrants. International Journal of Pharmacy and Pharmaceutical Research, 2016; 7(1): 424-434.
4. Mahaveer P.R, Khinchi, Gupta. M.K, Anil Bhandari, Dilip Agarwal. Design and development of orally disintegrating tablets of Fomatidine prepared by direct compression method using different superdisintegrants. Journal of Applied Pharmaceutical Sciences, 2011; 1(1): 50-58.
5. Krutika K.Sawant, Sanjay B. Patil, Avani R.Gosai. Formulation and Evaluation of Oro Dispersible Tablets of Ondansetron Hydrochloride by Direct Compression Using Superdisintegrants. International Journal of Pharmaceutical Sciences and Nanotechnology, 2008; 1.
6. Metker Vishal, Kumar Anuj, Pathak Naveen, Padhee Kumud, Sahoo Sangram. Formulation and evaluation of Orodispersible tablets of Lornoxicam. International Journal of Drug Development & Research, 2011; 3: 281-285.
7. Prakash Goudanavar, Doddayya Hiremath, SpandanaD., S.R.Reddy. Development and Evaluation of fast Disintegrating Tablets of Granisetron HCL With Natural and Synthetic Polymer. Asian Journal of Pharmaceutical Research, 2011; 2231-5691.
8. Sreenivasa Rao, Patil KG, Dattatreya Udgirkar, Praveen Patil. Design and Evaluation of Orodispersible Tablets of Sumatriptan Succinate. Rajiv Gandhi University of Health Sciences Journal of Pharmaceutical Sciences, 2012; 2(3): 41-47.
9. Hand book of Pharmaceutical Excipient Fifth Edition. Available on Online.
10. Indian pharmacopoeia, 1996; A147.