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Review On: Comparative Study Of Mefenamic Acid Tablet

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Abstract: Examining the pharmaceutical coequals of colorful brands of mefenamic acid capsules vended in Karachi, Pakistan, is the thing of this study. The study looked into two distinct kinds of 500 mg capsules of mefenamic acid. According to BP/ USP(British and United States Pharmacopoeia), four quality control(QC) parameters were performed weight variation, hardness test, frangibility test, and decomposition test. According to the study's findings, every parameter — including weight variation, hardness, decomposition, and frangibility — was in line with BP/ USP. In order to determine the medicine release rate and patterns, 200 mg controlled release matrices of mefenamic acid were created by direct contraction and in vitro medicine dissolving examinations were conducted. Methocel was employed as a polymer to control the rate. During in vitro dissolution examinations, the impact of numerous co-excipients on the medicine release rates was also examined. Polymer Methocel was made with the drug at four distinct D P rates and employed as a rate- controlling polymer. Using a Pharma Test dissolving instrument, phosphate buffer with a pH of 7.2 was employed as the dissolution media. To as certain the medicine release kinetics, a number of kinetic models were used to the dissolution biographies. The f2 similarity factor was used to estimate dissolution parity.

Index terms: **mefenamic acid, methocel, excipients, capsules, medicine**

1. INTRODUCTION:

As a nonsteroidal-inflammatory drug(NSAID) used to treat mild to moderate pain is mefenamic acid. Depending on the croaker's opinion, it can also be used to treat menstrual cramps and other affections. Only a croaker's tradition is needed to gain this drug. The following lozenge forms of mefenamic acid are available tablets, capsules, dormancies, etc.[6] We've chosen the Mefenamic acid tablet brands Meftal, Mefezy, and Maxi for a relative analysis of the numerous assessment criteria that are offered on the request. The NSAID class of anthranilic acid derivations, or fenamates, includes mefenamic acid (mef " e nam' ik). analogous to other nonsteroidal-inflammatory medicines, mefenamic acid inhibits the cyclo- oxygenase(Cox- 1 and-2) and prevents the conflation of intracellular prostaglandins, which are pivotal for pain and inflammation pathways. Despite having analgesic, antipyretic, and anti-inflammatory parcels, mefenamic acid is substantially employed to treat pain. Despite being certified in the US in 1967, mefenamic acid is n't a extensively used drug.[2] Mefenamic acid is specified to treat dysmenorrhea and mild- to-moderate acute discomfort. It's only accessible with a tradition as general and brand- name Ponstel 250 and 500 mg capsules. For durations shorter than seven days, the suggested lozenge is 250 – 500 mg three – four times a day. Although mefenamic acid, like the maturity of NSAIDs, is generally well permitted, possible adverse goods include headache, flightiness, doziness, nausea, diarrhoea, heartburn, abdominal pain, supplemental oedema, and acuity response. Mefenamic acid is absorbed snappily. Mefenamic acid is snappily absorbed from the stomach and, within one to four hours, reaches its maximum situations in the blood tube. further than 90 of

the material is attached to tube proteins in the bloodstream. It most likely crosses the placenta and is present in trace quantities in bone milk. Those with peptic ulcers or habitual gastrointestinal tract inflammation, those with order or liver complaint, and those who have endured acuity responses, similar as urticaria and asthma, to this drug or to other saids(similar aspirin), should n't take mefenamic acid.[3]

2. TABLET OF SUSTAINED RELEASE MEFENAMIC ACID

A medicine that releases gradationally over a long period of time is called sustained release. There is not a mefenamic acid marketable sustained release medication available on the request. The half- life is two hours, and the typical oral lozenge is 250 or 500 mg. Mefenamic acid tablets with sustained and controlled release are made to release the medicine gradationally over a long period of time. Longer- lasting relief is achieved by keeping the medicine's attention in the body constant.[4]

Special coatings or technologies used in the expression of the tablets regulate how snappily the medicine is released. This may be profitable for medicines with a short half- life or for affections that call for constant pain relief.[12]

3. TABLET OF CONTROLLED RELEASE MEFENAMIC ACID

In order to determine the medicine release rate and patterns, 200 mg controlled release matrices of mefenamic acid were created by direct contraction and in vitro medicine dissolving examinations were conducted. Methocel was employed as a polymer to control the rate. Mefenamic acid tablets with sustained and controlled release are made to release the medicine gradationally and steadily over an extended length of time. This keeps the medicine's position in the body constant, giving it a longer- lasting effect and conceivably lowering the need for frequent tablets. generally, unique expression styles and excipients are used to manage the active component's release in the tablets. These excipients may correspond of coatings or polymers that serve as walls to control the medicine's release. Depending on the case's particular conditions and the intended remedial outgrowth, the release rate might be changed. [7]

A further harmonious and successful course of treatment can affect from minimizing variations in the medicine's attention in the body through the use of dragged and controlled release phrasings. It's pivotal to flash back that the manufacturer and brand of the capsules can have an impact on the precise expression and release profile.[8]

- **Specifications of tablets Weight change, consistence, hardness, frangibility, and decomposition were all measured for several brands of mefenamic acid**

i. **Test of weight variation**:

Weight variation was examined using the A.N.D. Electronic Balance FX- 400. The difference in weight between tablets in terms of lozenge and weight must n't exceed blood pressure limitations. 20 tablets of each brand are chosen at arbitrary for this purpose. Compression during the process guarantees that the cure units are invariant. The weight friction as a chance of the average lozenge weight was reckoned. The lozenge must fall within the range of the chance divagation permitted by BP in order to pass the weight variation test. The following formula is used to determine the upper and lower control limits for weight variation Maximum limit of control Mean 3x standard divagation Mean- three times the standard divagation is the lower control limit.[9]

ii. Test of hardness:

Ten tablets of each brand are used in this test to see how strong the tablets are under mechanical force. The tablet must be robust enough to repel pressure. All of the brands' hardness is measured using Galvano Scientific's MH- 1 Hardness Tester. Each tablet's hardness value was assessed, and the average value was reckoned and varied. [3]

iii. Test of Friability:

Weight loss was calculated by calculating the number of tablets demanded to execute a Frangibility test of each brand of Mefenamic Acid by submitting them to a harmonious tumbling stir for a destined quantum of time, i.e., 25 reels per nanosecond for 4 twinkles in the FB- 1004 CURIO Company. By measuring the

morning and end weights and calculating the weight loss, a frangibility test is performed to see if a tablet erodes while being transported.[7]

iv. Test of decomposition:

One of the quality control tests used to ascertain if tablets or capsules dissolve in a fluid media within the permitted time frame is called decomposition testing. All brands passed a decomposition test on the Curro Model No. DS- 0702. Distilled water was added to a 900 ml teacup, and the temperature was kept between 37 °C and 2 °C. Six tablets of each brand were chosen at arbitrary, put in the handbasket rack assembly, and attached to the decomposition device. Each brand's decomposition time is varied with the BP- specified pharmacopoeial limit.[16]

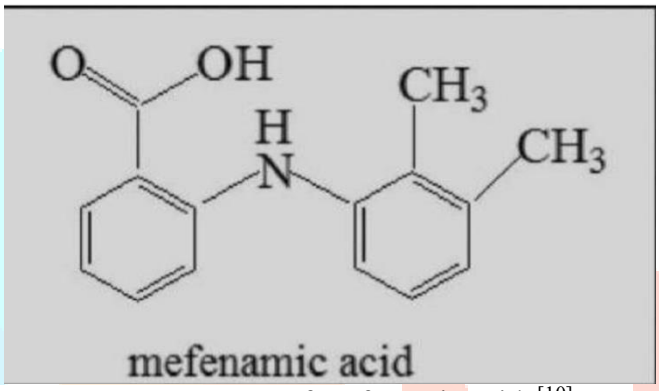
4. DRUG PROFILE:

i. Structure of mefenamic acid: [9]

IUPAC: 2-(2,3 dimethylaniline) benzoic acid

Chemical formula: $C_{15}H_{15}NO_2$

Molecular weight: 214.29 g/mol



"fig., structure of mefenamic acid"[10]

ii. Physical properties:

Physical state: white to greyish white. Micro crystalline powder.

Melting point: 2300-231^{0}C

Solubility in ethanol: Sparingly Soluble.

PH: 7.1

Stability: Stable in normal condition.

Action mechanism: Mefenamic acid is antipyretic, anti-inflammatory, and analgesic. In vitro, mefenamic acid
specifically reduces prostaglandin synthesis by blocking cyclo-oxygenase (COX-1 and COX-2).[16]

iii. Adverse effect:[3]

Vomiting.
Throwing.
Constipation.
Diarrhea.
Distress and stomach ache.
Contraindications:
Urticaria.
Asthma.
Allergic Reaction.
Hypersensitive to mefenamic acid.

5. **Market formulation:**[10]

Table 5.1, market formulations of mefenamic tablets[12]

Sr. No.	Brand name	Manufacturer
1	Meftal-500	Blue cross
2	Mefezy- 500	Mascot health series
3	Mexi-500	Unichem

6. CONCLUSION

There are several brands of mefenamic acid, including Maxi, Mefezy, and Meftal. measures similar as consistence, periphery, frangibility, hardness, weight variation, decomposition, and in- vitro dissolution exploration were each passed by mefenamic acid tablets of colorful brands. The Maxi brand of mefenamic acid tablets has a advanced medicine release of 87.75 than other brands, similar as Meftal and Mefezy, still there was no marketable friction in the capsules from each brand.

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