Topic: Review on Sublingual Tablet of Rizatriptan Benzoate.

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ABSTRACT

Rizatriptan Benzoate is a selective serotonin 5-HT1B/1D receptor agonist widely used for the treatment of acute migraine attacks. Migraine is a neurological disorder characterized by severe pulsating headache often associated with nausea, vomiting, and sensitivity to light and sound. Conventional oral dosage forms sometimes show a delayed onset of action due to gastrointestinal absorption and hepatic first-pass metabolism. To overcome these limitations, sublingual drug delivery systems have gained considerable attention as they allow rapid absorption of the drug through the sublingual mucosa directly into the systemic circulation, resulting in faster therapeutic action and improved patient compliance. The present review focuses on the formulation and evaluation of sublingual tablets of Rizatriptan Benzoate using suitable pharmaceutical excipients and formulation strategies. The formulation will be prepared by the direct compression method, which is a simple and widely used technique in tablet manufacturing. In the proposed formulation, croscarmellose sodium and crospovidone will be used as superdisintegrants to promote rapid tablet disintegration and enhance drug release. Chitosan will be incorporated as a polymer to improve tablet characteristics, while lactose will be used as a diluent to increase tablet bulk and ensure uniform drug distribution. Aspartame will be added as a sweetening agent to improve palatability. Additionally, magnesium stearate will act as a lubricant and talc will serve as a glidant to enhance powder flow and compression properties. The powder blends will be evaluated for pre-compression parameters such as angle of repose, bulk density, tapped density, Carr's index, and Hausner's ratio. The compressed tablets will further be evaluated for post-compression parameters including hardness, friability, weight variation, thickness, wetting time, disintegration time, drug content uniformity, and invitro dissolution studies. Stability studies of the optimized formulation will be carried out according to ICH guidelines to ensure the stability and effectiveness of the developed dosage form.

INTRODUCTION:

Migraine is a common neurological disorder characterized by recurrent attacks of severe headache typically affecting one side of the head. The pain is often pulsating in nature and may last from several hours to several days. Migraine attacks are frequently associated with symptoms such as,

• Nausea

• Vomiting

• Photophobia (sensitivity to light)

• Phonophobia (sensitivity to sound)

Migraine affects approximately 12–15% of the global population and is more prevalent in women than in men. The exact pathophysiology of migraine is complex and involves neurovascular mechanisms, release of inflammatory mediators, and changes in serotonin levels.

Rizatriptan Benzoate belongs to the class of drugs known as triptans, which are selective serotonin receptor agonists used in the treatment of acute migraine attacks. It works by constricting dilated cranial blood vessels and inhibiting the release of inflammatory neuropeptides, thereby relieving migraine symptoms.

Conventional oral tablets of Rizatriptan may have delayed onset of action due to gastric emptying time and first-pass metabolism in the liver. Sublingual tablets offer an effective alternative by allowing the drug to be absorbed directly through the mucous membrane under the tongue, resulting in faster therapeutic effect.

MOA OF RIZATRIPTAN BENZOATE AS AN ANTIMIGRAINE DRUG:

1. Rapid Sublingual Absorption

The tablet dissolves under the tongue and the drug are quickly absorbed through the sublingual mucosa into systemic circulation.

2. Bypass of First-Pass Metabolism

Sublingual delivery avoids hepatic first-pass metabolism, resulting in faster onset of action and improved bioavailability.

3. Serotonin Receptor Agonist Action

Rizatriptan acts as a selective 5-HT1B/1D receptor agonist.

4. Cranial Vasoconstriction

Activation of 5-HT1B receptors causes constriction of dilated intracranial blood vessels involved in migraine.

5. Inhibition of Neuropeptide Release

Activation of 5-HT1D receptors inhibits the release of inflammatory neuropeptides such as CGRP and substance P, reducing neurogenic inflammation and migraine pain.

Drug profile:

1. Rizatriptan Benzoate

Drug name: Rizatriptan Benzoate

Molecular weight: 269.34 g/mol

Molecular formula: $C_{15}H_{19}N_5$

Chemical name: 3-[2-(Dimethylamino) ethyl]-5-(1H-1,2,4-triazol-1-ylmethyl) indole benzoate

Physicochemical properties – Appearance:

Crystalline powder

Solubility: Soluble in phosphate buffer pH 6.8 & water

Melting point: 179°c

Pharmacokinetic profile –

Class: serotonin (5-HT1B/1D) receptor agonist

Half-life: 2-3 hrs

Therapeutic use: Acute treatment of migraine attacks.

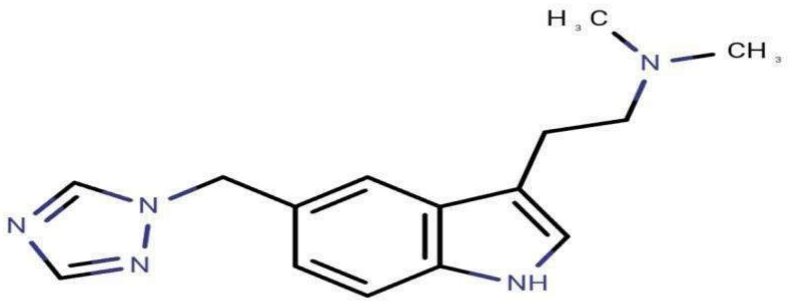

Fig. Structure of Rizatriptan Benzoate

Rizatriptan Benzoate is a potent antimigraine drug belonging to the class of selective serotonin (5-HT1B/1D) receptor agonists, commonly known as triptans. It is widely used for the acute treatment of migraine attacks and works by targeting the underlying neurovascular mechanisms involved in migraine pathophysiology. Chemically, Rizatriptan has the molecular formula $C_{15}H_{19}N_5$ and a molecular weight of approximately 269.34 g/mol. The drug exhibits rapid absorption after administration, with peak plasma concentrations generally reached within 1 to 1.5 hours. Rizatriptan shows moderate oral bioavailability of about 40–45%, which is mainly due to hepatic first-pass metabolism. It is distributed moderately throughout body tissues and shows relatively low plasma protein binding. The drug is primarily metabolized in the liver by the enzyme monoamine oxidase-A (MAO-A) to form inactive metabolites. The elimination half-life of Rizatriptan is approximately 2 to 3 hours, and the drug along with its metabolites is mainly excreted through the kidneys in urine. Pharmacologically, Rizatriptan produces its therapeutic effect by causing constriction of dilated cranial blood vessels and inhibiting the release of inflammatory neuropeptides from trigeminal nerve endings, thereby relieving migraine headache and associated symptoms. Due to its rapid onset of action and effective receptor selectivity, Rizatriptan is considered an important therapeutic agent in migraine management and is available in various dosage forms including conventional tablets, orally disintegrating tablets, and sublingual drug delivery systems.

Materials & Method:

API: - Rizatriptan Benzoate

Super disintegrant: - Cross povidone

Diluent: - Lactose

Binder: - Magnesium stearate

Mucoadhesive agent: - Chitosan

Sweetener: - Aspartame

Lubricant: - Talc

Preparation of Rizatriptan Benzoate sublingual tablet:

By using the direct compression method, tablets containing 5mg of Rizatriptan Benzoate were created in accordance with the design shown in Table 1. Separately, the weighted amounts of each powder- the lactose diluent, aspartame as a sweetner, superdisintegrant polymers Crospovidone and Croscarmellose Sodium, and the active component Rizatriptan Benzoate were passed through sieve no. 60 to remove lumps & ensure uniform particle size.

Magnesium stearate & Talc were separately passed through sieve no. 80. The sieved drug and excipients were blended thoroughly for 10-15 mins, in a mortar with pestle. Magnesium stearate & Talc were added to above powder blend and mixed gently for 2-3 mins to obtain uniform

blend. In order to create the required tablets, powdered mixture was finally weighed and compressed using a single-punch tablet compression machine equipped with flat-faced punches (Rimek Mini Press II compression machine).

Pre-formulation Studies:

Pre-formulation studies are conducted to evaluate the physical and chemical properties of the drug before formulation:

Drug-Excipient Compatibility:

Fourier Transform Infrared Spectroscopy (FTIR)

Fourier Transform Infrared Spectroscopy (FTIR) is a widely used analytical technique for evaluating drug–excipient compatibility in pharmaceutical formulations. It works by detecting the absorption of infrared radiation by chemical bonds present in the drug molecule. Each functional group absorbs infrared radiation at a specific wavelength, producing a characteristic spectrum that acts as a molecular fingerprint. In compatibility studies, the FTIR spectra of the pure drug, excipients, and their physical mixtures are compared. Any significant shift, disappearance, or appearance of new peaks indicates possible chemical interaction between the drug and excipients. If the characteristic peaks of the drug remain unchanged in the mixture, it confirms the absence of interaction and compatibility of the components.

Differential Scanning Calorimetry (DSC)

Differential Scanning Calorimetry (DSC) is a thermal analysis technique used to study the thermal behaviour and physical stability of pharmaceutical substances. It measures the heat flow associated with phase transitions such as melting, crystallization, and decomposition as a function of temperature. In drug–excipient compatibility studies, DSC thermograms of the pure drug and drug–excipient mixtures are compared. The presence of the characteristic melting endothermic peak of the drug in the mixture indicates compatibility, whereas significant changes such as peak shifting, disappearance, or the formation of new peaks may suggest possible interaction between the drug and excipients. DSC is therefore a valuable tool for confirming the stability and suitability of excipients in pharmaceutical formulations.

Flow Properties:

- Angle of Repose
- Bulk Density
- Tapped Density
- Compressibility Index
- Hausner’s Ratio

Evaluation Parameters of Sublingual Tablet:

Pre-Compression Parameter:

1. **Solubility**: Solubility is determined by adding an excess amount of the compound to a solvent so that saturation is achieved. The mixture is agitated in different buffer solutions

for several hours and then centrifuged. After 24 hours, the solubility is measured by analysing an aliquot of the clear supernatant.

2. **Angle of Repose**: The frictional properties of loose powders or granules can be evaluated using the angle of repose. It is defined as the highest angle that can form between the surface of a pile of powder and a horizontal plane. In this method, the granules are allowed to pass through a funnel attached to a stand at a fixed height (h). As the granules accumulate, they form a conical heap.

The angle of repose is then determined by measuring the height and the radius formed heap.

Formula:

$$\tan \theta = h/r$$

$$\Theta = \tan^{-1}(h/r)$$

Where,

Θ = angle of repose

H = height of the heap

R = radius of the heap

3. **Bulk Density:** Bulk density represents the overall density of a material, including the true volume of the particles as well as the spaces between and within them. It mainly depends on how the particles are packed. Bulk density is defined as the ratio of the weight of the powder to its bulk volume

Formula:

Bulk Density: (Weight of the powder)/ (Bulk volume of powder)

4.Tapped Density: Tapped density is used to evaluate the flow properties and packing behaviour of a formulation. It is defined as the ratio of the mass of a powder sample to the volume it occupies after being tapped in a measuring cylinder until the volume becomes constant.

Formula:

Tapped Density: -Weight of the powder)/(Tapped volume of powder)

5.Compressibility Index: The flowability of a powder can be assessed by comparing its bulk density (ρ_o) and tapped density (ρ_t), which indicate how easily the powder consolidates during tapping. The compressibility index is calculated using the following formula:

Formula:

Compressibility Index (%): - $\rho t - \rho o)/\rho t \times 100$

6.Hausner's Ratio: The Hausner ratio is used to evaluate the flow properties of powders and granules. It is determined by comparing the tapped density with the bulk density of the powder. A higher Hausner ratio indicates poorer flowability of the powder.

Formula:

Hausner Ratio: (Tapped Density (ρ_t)/ (Bulk Density (ρ_0))

Post-Compression Parameter:

1.Weight Variation: 20 tablets are weighed individually using an analytical balance to check weight variation. The individual weights must fall within the specified limits. The test is considered failed if more than two tablets fall outside these limits.

2.Hardness & Thickness: Hardness and thickness are important parameters used to evaluate the uniformity of tablet size. The hardness, thickness, and diameter of tablets are measured simultaneously using a hardness tester.

3.Friability: Friability is used to evaluate the mechanical strength of tablets. Ten tablets are weighed and placed in a friabilator, which is rotated at 25 rpm for 4 minutes. After the test, the tablets are dedusted and weighed again. The acceptable friability limit is preferably 0.5–1.0%.

Formula:

% Friability: ((Initial weight – Final weight)/ (Initial weight) × 100

4.Drug Content Uniformity: Content uniformity is an important quality control parameter that ensures each tablet contains the required amount of drug in a uniform manner. This test is performed by selecting tablets randomly from a batch and analysing the drug content of each unit. The drug is extracted using a suitable solvent, filtered, and quantified using analytical techniques such as UV–Visible spectrophotometry or HPLC. The obtained drug content of individual tablets should fall within the pharmacopoeial limits (generally ±5–10% of the labelled claim). Compliance with these limits confirms the uniform distribution of drug within the formulation, which is essential for ensuring consistent therapeutic efficacy and patient safety.

5.Wetting Time:
Wetting time indicates how quickly the tablet absorbs saliva and begins to disintegrate. It is an important parameter for rapid drug release.

6.Water Absorption Ratio:

This parameter reflects the ability of the tablet to absorb moisture, which directly influences disintegration behaviour.

7. In-Vitro Disintegration Time:

Disintegration time is a critical parameter for sublingual tablets, as rapid disintegration ensures quick drug release and absorption. Typically, sublingual tablets are expected to disintegrate within a short duration.

8. In-Vitro Dissolution Studies:

Dissolution testing will be carried out to determine the rate and extent of drug release from the sublingual tablets of Rizatriptan Benzoate over a short period of time.

The tablet will be placed in the dissolution vessel containing suitable medium (e.g., phosphate buffer pH 6.8), and samples will be withdrawn at predetermined time intervals (such as 1, 2, 3, 5, 10, and 15 minutes). After each sampling, the dissolution medium will be replenished with fresh buffer to maintain constant volume.

The samples will be analyzed using a UV-visible spectrophotometer at the λmax of the drug, and the concentration will be determined using a calibration curve. The cumulative percentage drug release will be calculated and plotted against time.

9. Drug Release Kinetics:

Drug release kinetics refers to the mathematical description of the rate at which a drug is released from a pharmaceutical dosage form. Evaluation of release kinetics is particularly important in controlled or extended-release formulations because it helps in understanding the mechanism governing drug release from the system.

The In-vitro dissolution data obtained from the formulation are analysed using various mathematical models, including Zero-order kinetics, First-order kinetics, Higuchi model, and Korsmeyer–Peppas model. The most appropriate kinetic model is identified by comparing the correlation coefficient (R^2) values obtained from each model. The model with the highest R^2 value indicates the predominant drug release behaviour of the formulation.

Zero-Order Kinetics: It describes drug release from a dosage form at a constant rate independent of the drug concentration.

$$Q = Q + kOt$$

First-Order Kinetics: In first order kinetics, the rate of drug release is directly dependent on the amount of drug remaining in the dosage form. As the drug concentration decreases, the release rate also decreases.

$$logQt = logQO + (K\_ (1)\ t)/\ (2.303)$$

Higuchi Model: It is widely used to explain drug release from matrix- type delivery systems. It Assumes that drug release occurs mainly through diffusion of the drug molecules from the matrix into the surrounding dissolution medium. This model is commonly applied to polymer based extended -Release tablets.

$$Q = KH\ t1/2$$

Korsmeyer-Peppas Model: It is used to analyse drug release from polymeric systems when the release mechanism is not well known or when multiple mechanisms are involved.

$$Mt/m\infty = k\_t\text{^}n$$

Stability Studies:

Stability studies for sublingual tablets of Rizatriptan Benzoate are essential to determine the product's shelf life, effectiveness, and safety under various environmental conditions. These studies involve evaluating the formulation under different conditions such as temperature, humidity, and light. The key aspects of stability testing include:

1. **Physical and Chemical Stability**

Monitoring changes in physical appearance (e.g., color, texture, and integrity) and chemical composition (e.g., assay of Rizatriptan Benzoate) over time.

2. **Dissolution Rate**

Evaluating whether the drug release profile remains consistent during storage, as it directly affects the onset of action and bioavailability of the sublingual tablet.

3. **Degradation Products**

Identifying any degradation products formed during storage, which may influence the safety and efficacy of the drug.

4. **Packaging Integrity**

Assessing the effectiveness of packaging materials in protecting the tablets from environmental factors such as moisture, air, and light, which are critical for sublingual formulations.

5. **Accelerated Stability Testing**

Subjecting the tablets to accelerated conditions (e.g., 40°C ± 2°C / 75% ± 5% RH) for a specific period to predict long-term stability.

These studies ensure that the formulation of Rizatriptan Benzoate sublingual tablets remains stable, effective, and safe throughout its intended shelf life.

PERSPECTIVES

Rizatriptan Benzoate is an effective and widely used antimigraine drug belonging to the triptan class. Due to its rapid onset of action and selective activity on serotonin receptors, it provides significant relief from migraine headaches and associated symptoms. In recent years, advancements in pharmaceutical technology have focused on developing novel drug delivery systems such as orally disintegrating and sublingual tablets to improve patient compliance and achieve faster therapeutic action. These formulations enhance drug absorption and bypass firstpass metabolism, which may improve bioavailability. Therefore, the development of innovative formulations of Rizatriptan Benzoate has promising potential for improving migraine management and providing better treatment outcomes for patients. Therefore, future research and development in Rizatriptan Benzoate formulations may lead to more efficient and patientfriendly drug delivery systems. These advancements have the potential to improve therapeutic effectiveness and provide better management of migraine symptoms.

Uses of Rizatriptan Benzoate in migraine treatment: -

Rizatriptan Benzoate is primarily used for the acute treatment of migraine attacks with or without aura. It helps in relieving moderate to severe migraine headaches by acting on serotonin receptors in cranial blood vessels and trigeminal nerves.

The main uses include:

• Relief from Migraine Headache:

Rizatriptan helps reduce the intensity of migraine pain by constricting dilated cranial blood vessels.

• Reduction of Associated Symptoms:

It helps relieve symptoms that commonly occur with migraine such as nausea, vomiting, photophobia (sensitivity to light), and phonophobia (sensitivity to sound).

HOW TO TAKE SUBLINGUAL TABLET OF RIZATRIPTAN BENZOATE

Administration of Rizatriptan Benzoate as a Sublingual Tablets:

Rizatriptan Benzoate sublingual tablets are administered by placing the tablet under the tongue, where it quickly dissolves in saliva. The tablet should be allowed to dissolve completely without chewing or swallowing, as it is designed to be absorbed through the sublingual mucosa directly into the bloodstream. This route of administration helps the drug bypass hepatic firstpass metabolism and provides a faster onset of action compared to conventional oral tablets. Patients should avoid eating or drinking until the tablet has fully dissolved to ensure proper absorption of the drug. The usual recommended dose is 5 mg or 10 mg, taken at the onset of a migraine attack as prescribed by a healthcare professional.

Sublingual tablets are a type of drug delivery system designed to dissolve under the tongue, allowing the drug to be absorbed directly through the sublingual mucosa into the bloodstream. The sublingual region is highly vascularized, which enables rapid drug absorption and faster onset of therapeutic action while bypassing hepatic first-pass metabolism.

SIDE EFFECT:

- Rizatriptan is generally well tolerated; adverse reactions are typically mild and transient in nature.
- The most common side effects include dizziness, somnolence (drowsiness), asthenia/fatigue.
- "Triptan sensations" frequently occur, involving feelings of pain, tightness or heaviness in the neck, throat, or jaw.
- Overall, Rizatriptan Benzoate is considered a safe antimigraine drug with minimal adverse effects.

PREVENTIONS

The risk of side effects associated with Rizatriptan Benzoate can be minimized by using the medication according to the prescribed dosage and medical advice. Rizatriptan should not be taken along with monoamine oxidase inhibitors (MAO inhibitors), selective serotonin reuptake

inhibitors (SSRIs), or other triptan medications without proper medical supervision, as these combinations may increase the risk of adverse reaction so avoid excessive or frequent use of the drug, as overuse may lead to medication-overuse headaches. It is important to inform the healthcare provider about any existing medical. Following the recommended dose and proper administration can help ensure safe and effective use of Rizatriptan Benzoate in migraine treatment.

DRUG INTERACTIONS OF RIZATRIPTAN BENZOATE

Rizatriptan Benzoate may interact with several drugs which can either increase its effects or cause adverse reactions. Concomitant use with monoamine oxidase inhibitors (MAO inhibitors) can significantly increase the plasma concentration of Rizatriptan and may lead to serious side effects; therefore, it should not be used within two weeks of MAO inhibitor therapy. The drug may also interact with selective serotonin reuptake inhibitors (SSRIs) and serotonin–norepinephrine reuptake inhibitors (SNRIs), which may increase the risk of serotonin syndrome, a condition characterized by agitation, rapid heartbeat, and increased body temperature.

However, Rizatriptan may show better therapeutic results when used along with certain supportive medications such as antiemetic drugs (e.g., metoclopramide) to control nausea and vomiting associated with migraine. It may also be used along with non-steroidal antiinflammatory drugs (NSAIDs) such as naproxen or ibuprofen, which can enhance pain relief in some patients. Therefore, appropriate drug combinations under medical supervision can improve the effectiveness of Rizatriptan in the management of migraine attacks.

TOXICITY

Rizatriptan Benzoate is generally considered safe when used within the recommended therapeutic dose; however, excessive use or overdose may lead to toxic effects. Toxicity may occur due to increased stimulation of serotonin receptors and excessive vasoconstriction of blood vessels. Symptoms of toxicity may include severe dizziness, drowsiness, increased blood pressure, chest tightness and irregular heartbeat. In some cases, patients may also experience serotonin syndrome, especially when Rizatriptan is taken along with other serotonergic drugs such as SSRIs or MAO inhibitors. This condition may cause symptoms such as agitation, confusion, rapid heart rate, and increased body temperature. Severe toxicity may lead to cardiovascular complications in susceptible individuals. Therefore, Rizatriptan Benzoate should be used cautiously and only at the recommended dose under proper medical supervision to avoid toxic effects.

FUNCTIONING AND MECHANISM

Functioning of mechanism

Rizatriptan Benzoate works by acting on serotonin (5-HT1B/1D) receptors present in the blood vessels of the brain and in the trigeminal nerves. During a migraine attack, the blood vessels in the brain become dilated and release inflammatory chemicals such as CGRP and substance P, which cause headache and pain. Rizatriptan helps by constricting the dilated blood vessels and reducing the release of these inflammatory substances. This action decreases inflammation and blocks the transmission of pain signals to the brain, providing relief from migraine symptoms.

When taken as a sublingual tablet, the drug dissolves under the tongue and is absorbed quickly into the bloodstream, which helps in providing faster relief from migraine attacks.

CONCLUSION:

The present study aims to formulate and evaluate sublingual tablets of Rizatriptan Benzoate for rapid drug release and faster onset of action in the treatment of acute migraine. The formulation will be prepared by the direct compression method using suitable excipients such as croscarmellose sodium and crospovidone as superdisintegrants, chitosan as a polymer, lactose as a diluent, aspartame as a sweetening agent, magnesium stearate as a lubricant, and talc as a glidant to enhance tablet properties and rapid disintegration. Pre-formulation and precompression studies will be carried out to evaluate the physicochemical properties and flow characteristics of the powder blend. The prepared tablets will be evaluated for various postcompression parameters including hardness, friability, weight variation, thickness, disintegration time, drug content, and in-vitro dissolution studies. Furthermore, stability studies will be conducted according to ICH guidelines to ensure the quality and stability of the formulation. Thus, the development of Rizatriptan Benzoate sublingual tablets will provide a

promising approach for rapid drug release and improved therapeutic effectiveness in migraine management.

REFERENCE

1. Dooley M., Faulds D. Rizatriptan: A review of its efficacy in the management of migraine Drugs. 1999;58(4):699–723. [PubMed] [Google scholar]

2. Manisha Kumar Singh[1], * Noida Institute of Engineering and Technology (Pharmacy Institute), Great Noida,UP,India. Indian Journal of Pharmaceutical Education and Research [PubMed] [Google Scholar]

3. Amoozegar F., Pringsheim T. Rizatriptan for the acute treatment of migraine: consistency, preference, satisfaction, and quality of life. Patient Preference and Adherence. 2009; 3:251–258. PubMed [Google Scholar]

4. Tfelt-Hansen P., De Vries P., Saxena P.R. Triptans in migraine: a comparative review of pharmacology, pharmacokinetics and efficacy. Drugs. 2000 [Google Scholar]

5. Pascual J. A review of rizatriptan, a quick and consistent 5-HT1B/1D agonist for the acute treatment of migraine. Expert Opinion on Pharmacotherapy. 2004;5(3):669–677. [PubMed] [Google Scholar]

6. Lainez M.J. Rizatriptan in the treatment of migraine. Neuropsychiatric Disease and Treatment. 2006;2(3):247–259 [PubMed] [Google Scholar]

7. Tfelt-Hansen P., De Vries P., Saxena P.R. Triptans in migraine: a comparative review of pharmacology, pharmacokinetics and efficacy. Drugs. 2000[Google Scholar]

8. Williamson D.J., Hill R.G., Shepheard S.L., Hargreaves R.J. The anti-migraine 5HT1B/1D agonist rizatriptan inhibits neurogenic dural vasodilation. British Journal of Pharmacology. 2001;133(7):1029-1034. [Google Scholar]

9. World Journal of Pharmaceutical Sciences; Formulation and Evaluation of Fast Disintegrating Sublingual Tablets of Rizatriptan Benzoate. [Google Scholar]

10. International Journal of Advanced Research in Medical & Pharmaceutical Sciences (IJARMPS-ISSN-2455-6998) Preparation of Rizatriptan Benzoate Sublingual Tablets Prepared by Direct Compression. [PubMed] [Google Scholar]

11. International Journal of Pharmacy Practice & Drug Research;Prasanna Kumar Desu*; Department of Pharmaceutics,Priyadarshini Institute of Pharmaceuitcal Education & Research,Pulladigunta,Vatticherukuru(M), Guntur.

12. International Journal of Current Research in Health and Biological Sciences;A Review on Sublingual Tablets for the Management of Migriane;Md. Ashaduz Zaman*; Assistant Professor.,Dept. of Pharmaceutics,Huda Group of Institutions,Khanuamiri,Samaguri,Nagao,Assam,India.

13. International Journal of Creative Research Thoughts (IJCRT); Bhusari Pallavi K.,Chemical Formuation and Evaluation of Rizatriptan Sublingual Tablet For migraine.