



Original Article

Formulation and characterization of mouth dissolving mucoadhesive buccal film of Zolmitriptan

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ABSTRACT: Fast dissolving buccal film drug delivery system is an alternative to tablets, capsules, and syrups for pediatric and geriatric patients who experience difficulties of swallowing traditional oral solid dosage forms. It improves the efficacy of API by dissolving within minute in oral cavity after the contact with less saliva as compared to fast dissolving tablets, without chewing and no need of water for administration. Oral films provide better drug utilization by avoiding the first pass metabolism, enhance drug bioavailability. Fast dissolving buccal films of zolmitriptan were prepared by solvent casting method using Polymers (E4, E10, E15) in different ratio as film forming agent, PEG 400 as plasticizer, Tween 80 as permeation enhancer, glycerin as surfactant.

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INTRODUCTION

Buccal delivery of drug, as an alternative to the oral route of drug administration, is a subject of growing interest because of its numerous advantages such as good accessibility, robustness of epithelium, facile removal of dosage form in case of need, relatively low enzymatic activity, prevent drug degradation in gastrointestinal tract and avoid hepatic first-pass metabolism. There are various dosage forms for buccal drug delivery like buccal tablets, buccal patch, adhesive gels etc.

A suitable buccal drug delivery system should possess good bioadhesive properties, so that it can be retained in the oral cavity for desired duration. Bioadhesive polymers have been used extensively for use in buccal drug delivery systems like polyacrylic acid, polycyanoacrylate, various grades of Hydroxypropyl methyl cellulose, etc. The development of newer excipients for potential use as mucoadhesive polymers continues to be of interest.

In addition, it should release the drug in a unidirectional way towards the mucosa, in controlled and predictable manner, to elicit the required therapeutic response. This unidirectional drug release can be achieved by using bilayer devices using polymers like Ethyl cellulose, carbopol, magnesium stearate, polycarbophil, etc. [1].

Zolmitriptan is 5-HT₁receptor agonist used in the treatment of migraine. Migraine is a mysterious disorder characterized by pulsating headache, usually restricted to one side, which comes in attacks lasting 4-48 hours and is often associated with nausea, vomiting, sensitivity to light and sound, vertigo, loose motion and othersymptoms [2].

The half-life of the Zolmitriptan is 2.5 to 3 hrs and it undergoes hepatic metabolism, the absolute oral bioavailability is about 40-50%. Bioavailability of drug in film dosage form is greater than the convectional dosage form [3].