



RESEARCH ARTICLE

FORMULATION AND EVALUATION OF GRANISETRON HYDROCHLORIDE ORODISPERSIBLE TABLETS

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The object of the present work was to formulate and evaluate orodispersible tablets of granisetron hydrochloride, a highly water soluble, tasteless, antiemetic drug employing superdisintegrants explotab, crospovidone, Ac-Di-Sol. The mix powder blends of varying compositions were prepared and evaluated for micromeritic properties and then subjected to tablet preparation by direct compression method. The prepared tablets were evaluated for physical parameters, wetting time, disintegration time, content uniformity and *in vitro* dissolution. The physical parameters were found satisfactory and the disintegration time of tablets was found between 19 to 35 seconds which is well below the limit of disintegration time by European Pharmacopoeia *i.e.* 3 minutes where as wetting time was found between 26-34 sec. Tablets prepared with crospovidone at 5% level (F4) was found to be the best formulation as it exhibited satisfactory physical parameters, least disintegration and wetting time and highest percent drug release (99.45%) at 10 min. Furthermore, F4 showed good stability at accelerated conditions (40°C ±75% RH). The studies aid in the judicious selection of type and concentration of superdisintegrants in order to formulate a cost effective and patient friendly dosage form.

Key words: Granisetron hydrochloride, Superdisintegrants, Orodispersible tablets, Antiemetic.

INTRODUCTION

Difficulty in swallowing (Dysphagia) is a common problem in all age groups, especially the elderly and pediatrics, because of physiological changes associated with these age groups. It is common to see those afflicted carrying a small device with them, which is used for crushing tablets, enabling easy ingestion. Other categories that experience problems using conventional oral dosage forms include the mentally ill, uncooperative and nauseated patients, those with conditions of motion sickness, sudden episodes of allergic attack and coughing. Sometimes, it may be difficult to swallow conventional products due to unavailability of water especially during traveling. These problems led to the development of a special type of solid oral

dosage form called orodispersible tablets, which disintegrate and dissolve rapidly in saliva without the need of water. They are also known as mouth dissolve tablets, fast dissolving tablets, melt-in-mouth tablets, rapimelts, porous tablets, quick dissolving or rapidly disintegrating tablets. A number of researchers reported various aspects of orodispersible tablets (Seager, 1998; Panigrahi *et al* 2010; Reddy and Ghosh, 2002; Biradar *et al* 2006; Bandari *et al* 2008; Shukla *et al* 2009). Granisetron hydrochloride is the antagonist of serotonin 5-HT₃ receptors, located peripherally on vagal nerve terminals, enteric neurons in the GI tract, and centrally in the chemoreceptor trigger zone. During chemotherapy, mucosal enterochromaffin cells from the small intestine release serotonin