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Design and *In vivo* Evaluation of Palonosetron HCl Mouth Dissolving Films in the Management of Chemotherapy-Induced Vomiting

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ABSTRACT

Fast dissolving oral delivery systems are solid dosage forms, which disintegrate or dissolve within 1 minute in the mouth without drinking water or chewing. Mouth dissolving film (MDF) is a better alternate to oral disintegrating tablets due to its novelty, ease of use and the consequent patient compliance. The purpose of this work was to develop mouth dissolving oral films of palonosetron HCl, an antiemetic drug especially used in the prevention and treatment of chemotherapy-induced nausea and vomiting. In the present work, the films were prepared by using solvent casting method with various polymers HPMC E3, E5 & E15 as a film base synthetic polymer, propylene glycol as a plasticizer and maltodextrin and other polymers. Films were found to be satisfactory when evaluated for thickness, *in vitro* drug release, folding endurance, drug content and disintegration time. The surface pH of all the films was found to be neutral. The *in vitro* drug release of optimized formulation F29 was found to be 99.55 ± 6.3 7% in 7 min. The optimized formulation F29 also showed satisfactory surface pH, drug content (99.38 ± 0.08 %), disintegration time of 8 seconds and good stability. FTIR data revealed that no interaction takes place between the drug and polymers used in the optimized formulation. *In vitro* and *in vivo* evaluation of the films confirmed their potential as an innovative dosage form to improve delivery and quick onset of action of Palonosetron Hydrochloride. Therefore, the mouth dissolving film of palonosetron is potentially useful for the treatment of emesis disease where quick onset of action is desired, also improved patient compliance.

KEYWORDS: Palonosetron; mouth dissolving films; chemotherapy; disintegration time; vomiting.