DEVELOPMENT OF THE COMPOSITION OF ORODISPERSIBLE ANTIEMETIC TABLETS

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Introduction. Orodispersible tablets (ODTs) have gained significant attention in recent years due to their convenience and ease of administration, particularly for patients with swallowing difficulties, such as children, the elderly, and those suffering from dysphagia. The rapid disintegration of these tablets in the mouth without the need for water provides a solution for individuals in various clinical scenarios, including chemotherapy, post-operative recovery, and gastrointestinal disorders that are often accompanied by nausea and vomiting. Antiemetic drugs, when delivered in the form of ODTs, offer the advantage of faster absorption and onset of action, which is crucial for managing sudden episodes of nausea and vomiting. This study aims to develop an effective orodispersible antiemetic tablet formulation that improves patient compliance while ensuring therapeutic efficacy.

ODTs are particularly useful in situations where immediate relief is required, such as during chemotherapy-induced nausea or in cases of motion sickness. Traditional antiemetic formulations may not always be suitable, as they can take longer to act, or may be difficult for patients to ingest. Developing a stable and efficient ODT formulation addresses these challenges by focusing on rapid drug release, pleasant taste, and overall patient comfort.

The aim of the study. This research aims to develop a well-balanced composition for orodispersible antiemetic tablets that meet pharmaceutical quality standards, including rapid disintegration, optimal bioavailability, and sufficient stability over time. The study also aims to explore the impact of various excipients on the tablet's properties, such as its mouthfeel, disintegration time, and release profile. Additionally, the research seeks to optimize the concentration and type of superdisintegrants used, to achieve the fastest possible disintegration time without compromising the physical integrity of the tablet.

Moreover, this research will evaluate the compatibility of the active antiemetic ingredient with different excipients to ensure that the therapeutic effectiveness is maintained during the shelf life of the product. The final objective is to develop a patient-friendly dosage form that combines fast action with a pleasant taste profile, making it suitable for a wide range of patient populations.

Methods of research. Initial formulation trials were conducted using various superdisintegrants such as croscarmellose sodium, sodium starch glycolate, and crospovidone, which were evaluated for their efficiency in reducing disintegration time. Sweeteners, flavoring agents, and fillers like mannitol and microcrystalline cellulose were incorporated to enhance the sensory attributes of the tablets. Disintegration time was measured using standard pharmacopoeial methods, and the dissolution profile of the active antiemetic ingredient was determined using in vitro techniques. The research also evaluated the mechanical strength of the tablets to ensure they withstand transportation and handling.

Main results. The research resulted in the identification of an optimized formulation that successfully reduced the disintegration time of the orodispersible tablets. Among the tested superdisintegrants, crospovidone yielded the most effective results, ensuring both fast disintegration and a smooth mouthfeel.

Conclusions. The development of an orodispersible antiemetic tablet has proven to be successful, offering a dosage form that not only meets pharmaceutical standards but also meets the needs of patients. The optimized formulation should provide rapid absorption, rapid onset of action and improved patient tolerance, making it a highly effective treatment for nausea and vomiting. The pleasant taste and ease of use further enhance the practical benefits of this product, especially for patients who have difficulty with traditional tablet forms. In addition, further optimization of the tablet formulation may be aimed at incorporating natural excipients or alternative antiemetic compounds to improve the versatility and safety profile of the product. With the ongoing development of pharmaceutical technologies, the potential of orodispersible tablets to address unmet medical needs remains enormous, especially in patient-centered drug delivery systems.