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Formulation Development and Evaluation of Orodispersible Tablets of Proton Pump Inhibitor

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Abstract: *This study aimed to develop and evaluate Lansoprazole orodispersible tablets (ODTs) formulated by the direct compression method employing different superdisintegrants to enhance patient compliance and improve therapeutic efficacy in acid-related disorders. Lansoprazole calibration was established in 0.1 N HCl at λmax 281.5 nm. FTIR studies confirmed compatibility between Lansoprazole and selected excipients. Nine formulations (F1–F9) were prepared using crospovidone, sodium starch glycolate, and croscarmellose sodium at varying concentrations. Pre-compression parameters, including bulk density, tapped density, Carr's index, Hausner's ratio, and angle of repose, indicated satisfactory flow and compressibility. Post-compression evaluations demonstrated uniform thickness, acceptable hardness (3.37–4.23 kg/cm²), low friability (<1%), and consistent drug content (98.47–99.89%). In-vitro studies revealed varying disintegration times, with F3 exhibiting the shortest (~24 sec) and superior dissolution characteristics. Overall, formulation F3 proved most promising, achieving rapid disintegration, efficient drug release, and robust mechanical properties, supporting its potential as a patient-friendly dosage form for effective management of acid-peptic conditions.*

Keywords: Lansoprazole, orodispersible tablets, superdisintegrants, direct compression, disintegration time, dissolution, FTIR compatibility

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