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Formulation and Evaluation of Floating Tablets

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Abstract: *The present study was aimed at the formulation and evaluation of floating tablets of Meloxicam to achieve prolonged gastric residence and sustained drug release, thereby enhancing bioavailability. Preformulation studies were performed to characterize the drug, including melting point, solubility, UV, and FTIR analysis. Floating tablets were formulated by wet granulation technique using varying concentrations of HPMC (K4M, K15M, K100M), sodium bicarbonate as a gas-generating agent, and citric acid to optimize floating characteristics. Pre-compression parameters like bulk density, tapped density, Carr's index, Hausner's ratio, and angle of repose were determined, indicating acceptable flow properties. The prepared tablets were evaluated for weight variation, hardness, friability, drug content uniformity, in-vitro buoyancy (floating lag time and total floating time), swelling index, and in-vitro dissolution. The optimized formulation exhibited a floating lag time below 20 seconds, total floating time exceeding 12 hours, and sustained drug release up to 12 hours. Thus, the study successfully developed a floating drug delivery system of Meloxicam with desirable physicochemical and release properties.*

Keywords: Meloxicam, floating tablets, wet granulation, HPMC, gastroretentive, sustained release, in-vitro buoyancy

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