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Formulation and Evaluation of Floating Tablet

Miss. Ashvini Kundlik Jadhao, Prof. Unmesh M. Joshi[2], Dr. H. A. Sawarkar, Dr. K. R. Biyani
Anuradha College of Pharmacy, Chikhali, Buldana, Maharashtra, India

Abstract: *The formulation and evaluation of floating tablets of Piroxicam aimed to develop a gastro-retentive drug delivery system enhancing the bioavailability and therapeutic efficacy of the drug. The standard graph of Piroxicam was constructed by plotting absorbance against concentration, revealing a linear relationship within the concentration range of 16 µg/ml to 24 µg/ml, demonstrating the method's accuracy for quantification purposes. FTIR studies were conducted to analyze the molecular structure and drug-excipient compatibility, showing characteristic peaks and interactions that confirmed formulation integrity. Preformulation studies assessed the flow behavior and compressibility of the powdered blend, indicating variations in bulk density, tapped density, compressibility index, Hausner's ratio, and angle of repose among formulations (F1 to F9). Post-compression parameters such as average tablet weight, hardness, friability, and drug content were evaluated, showing consistent tablet mass and high drug content uniformity. Buoyancy studies measured buoyancy lag time and total floating time, essential for optimizing gastric retention. Swelling index studies demonstrated the formulations' potential for prolonged gastric residence. Drug release studies indicated substantial and controlled drug release over 10 hours, suggesting the efficacy of the floating tablets for sustained therapeutic effect. Overall, the evaluation confirmed that the floating tablets of Piroxicam could enhance drug bioavailability and provide extended drug release, contributing to improved patient compliance and therapeutic outcomes.*

Keywords: Piroxicam, floating tablets, standard graph, UV spectroscopy, FTIR, preformulation, buoyancy, drug release.