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Formulation, design and evaluation of fast dissolving tablets of fexofenadine hydrochloride by lyophilization technique¹Rajendra Kotadiya and ²Bhavin Bhalani¹Sigma Institute of Pharmacy, India²Indukaka Ipcowala College of Pharmacy, India

In the present study an attempt was made to formulate and evaluate fast dissolving tablets containing Fexofenadine HCl as a model drug by Lyophilization technique. Fexofenadine HCl, is a non-sedating anti histamine used in the symptomatic relief of allergic conditions including seasonal allergic rhinitis and urticaria with poor aqueous solubility. The study was aimed to enhance the aqueous solubility and dissolution of drug by developing it into Lyophilized tablets. The Lyophilized tablets were prepared by dispersing the drug in an aqueous solution of highly water-soluble polymers (gelatin, maltodextrose and acacia) with glycine and mannitol. The mixture was poured into the pockets of blister packs and subjected to freezing followed by Lyophilization. Prepared Lyophilized tablets were characterized by XRD, SEM, Mercury porosimetry, solubility, wetting, water absorption ratio, drug content, dissolution and stability studies. Characterizations showed that tablets containing acacia had fast disintegration and higher mechanical strength with improved solubility of Fexofenadine HCl. XRD study revealed that the physical state of drug was unchanged with decreased crystalline structure. A good porous structure was observed for tablets as per SEM. The total porosity, wetting time, water absorption ratio and drug content were found to be 23.27%, 7sec, 80.22 and 97.78%, respectively. Dissolution study showed almost 90% of drug released in 5 minutes. Comparison of selected batch was made with the marketed formulation (MF) where our formulated batch showed 90% drug release in 30 min compared to 7 min for MF. Moreover, tablets were found to be stable over a period of one month as well.

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