

Preparation and Characterization of Orodispersible and Orodissolvable Polymeric Films: Effect of Polymer Type and Combination on Drug Release Rate

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Abstract

The poor aqueous solubility of folic acid (FA) poses a major challenge in formulation development. To overcome this issue, loading FA in an orodispersible and orodissolvable films (ODFs), using multi polymers, and utilizing different manufacturing techniques was introduced, including solvent casting, plate pressing, and 3D-printing. This study aims to prepare the best possible FA loaded ODFs formulations that are convenient to the patient and simply applicable. The films were investigated with regards to the physical and mechanical properties, bio-adhesion, disintegration

time, drug content uniformity, and drug release rate. The prepared films using PEG400 as a co-solvent were found to be clear, had a pH close to the normal pH of saliva. The disintegration and release profile of the films in phosphate buffer (pH 7.4) were dependent on the polymer type, and showed a uniform drug content as it ranged from 97 to 102%.

Keywords: Folic acid, PEG400, solid dispersion, solvent casting, 3D-printing.