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Abstract

Tuberculosis (TB) is a deadly infectious disease; approximately 2 billion people are currently latently infected with the causative agent *Mycobacterium tuberculosis*. Approximately 8 million new active cases and 2 million deaths due to TB are recorded annually[1]. Rifampin (Rif) is a vital first line TB treatment drug. Its effectiveness is hampered by the high dose required (600 mg 1x/day) and by its moderate, variable bioavailability. These issues can be explained by Rif instability at gastric pH, limited solubility at neutral pH, polymorphism, and stimulation of its own metabolism. To overcome these obstacles, we developed new cellulose based oral drug delivery systems aiming to increase and make more consistent Rif solubility and bioavailability. Amorphous solid dispersions (ASDs) of Rif with cellulose ω-carboxyalkanoates (cellulose acetate suberate, cellulose acetate propionate adipate, and cellulose acetate butyrate sebacate) were prepared, and compared with crystalline Rif (negative) and carboxymethyl cellulose acetate butyrate ASD (positive) controls. Cellulose ω-carboxyalkanoate