Assessment of Physicochemical Properties of Solid-Dispersed Meloxicam Tablets Compared with Commercial Product

Gamal M. Mahrous, Gamal A. Shazly, Mahmoud El-Badry, Sayed H. Auda and Faiyaz Shakeel

Abstract:

In this study, new tablet formulations of spray-dried binary systems (SD) of meloxicam (MLX) with either Kollicoat IR® or polyvinylpyrrolidone (PVP) were prepared and characterized in comparison with a commercial tablet product (Mobic®). Physicochemical characterization of prepared microparticles was carried out by Fourier transform infrared spectroscopy (FTIR), differential scanning calorimetry (DSC) and scanning electron microscopy (SEM) for MLX binary systems as well as the untreated drug and polymers to investigate the possibility of drug polymer interaction. Prepared and commercial tablets as well as SD were evaluated for their in vitro release rate in phosphate buffer (pH 7.4). Physicochemical characterization indicated that the drug is dispersed in the carrier and there is possibility of physical intermolecular hydrogen bonding between MLX and both Kollicoat IR® and PVP. Moreover, the prepared tablets showed higher dissolution rates compared with the innovator product. In addition, prepared tablets exhibited acceptable hardness, friability and drug content.

Keywords:

In vitro release, Kollicoat IR, Meloxicam, Physicochemical properties, Tablets.

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