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

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***SUMMARY*. 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.**

RESUMEN. Se prepararon y caracterizaron nuevas formulaciones de comprimidos de sistemas binarios secadas por pulverización (SD) de meloxicam (MLX), ya sea con Kollicoat IR® o polivinilpirrolidona (PVP), en comparación con un producto comercial (Mobic®). La caracterización físico-química de las micropartículas preparadas se llevó a cabo por espectroscopia infrarroja por transformada de Fourier (FTIR), calorimetría diferencial de barrido (DSC) y microscopía electrónica de barrido (SEM) para los sistemas binarios MLX, así como del fármaco no tratado y de los polímeros para investigar la posibilidad de interacción polímero-droga. Los comprimidos preparados y los comerciales, así como los comprimidos preparados por SD fueron evaluados por su tasa de liberación *in vitro* en tampón de fosfato (pH 7,4). La caracterización fisicoquímica indicó que el fármaco se dispersa en el portador y que hay posibilidad de unión de hidrógeno intermolecular física entre MLX y tanto Kollicoat IR® como PVP. Los comprimidos preparados mostraron mayor velocidad de disolución en comparación con el producto innovador, exhibiendo además aceptable dureza, friabilidad y contenido de fármaco.

KEY WORDS: In vitro release, Kollicoat IR, Meloxicam, Physicochemical properties, Tablets.

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