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Effect of drying process on the physico-chemical properties of oxacam drugs

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Modification of physico-chemical properties of poorly water-soluble drugs have a considerable interest in the pharmaceutical technology research area since it affects bioavailability. Our previous research has demonstrated solubility improvement applying “liquisolid” technique [1], in this study the aim was to investigate the effect of drying process (vacuum drying and freeze drying) on the physico-chemical characters of two oxicams: lornoxicam and meloxicam using the same formulation.

Polyvinylpyrrolidone (PVP K90), sodium bicarbonate, Avicel Ph 102 and Tween 80 were used as additives. Particle size analysis of the drug and the drug: excipients compatibility studies by Fourier transformation infrared (FT-IR) and differential scanning calorimetry (DSC) were carried out as a preformulation studies. The degree of crystallinity was calculated using the X-rays diffraction patterns. Dissolution rate of the pure drugs and of all formulations was investigated at pH 7.4 and pH 1.2, also. Dissolution rate profiles were compared by the use of similarity factor equation.

The results implies that the type of drying process has a remarkable effect on the physico-chemical properties of lornoxicam and meloxicam.

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References:

1. El-Setouhy, et al. Pharm Dev Technol. 22(2), 256-265 (2017).