Insights in Analytical Electrochemistry, 3:2
DOI: 10.21767/2470-9867-C1-003

Spherical crystals of celecoxib to improve solubility, dissolution rate and micromeritic properties

Venkadari Rammohan Gupta
Pulla Reddy Institute of Pharmacy, India

Celecoxib spherical agglomerates were prepared with polyvinylpyrrolidone (PVP) using acetone, water and chloroform as solvent, non-solvent and bridging liquid, respectively. The agglomerates were characterized by differential scanning calorimetry (DSC), X-ray diffraction (XRD), IR spectroscopic studies and scanning electron microscopy (SEM). The IR spectroscopy and DSC results indicated the absence of any interactions between drug and additives. XRD studies showed a decrease in crystallinity in agglomerates. The crystals exhibited significantly improved micromeritic properties compared to pure drug. The loading efficiency (% or mg drug per 100 mg crystals) was in the range of 93.9±2.3 and 97.3±1.3% (n=3) with all formulations. The aqueous solubility and dissolution rate of the drug from crystals was significantly ($p<0.05$) increased (nearly two times). The solubility and *in vitro* drug release rates increased with an increase in PVP concentration (from 2.5 to 10%). The SEM studies showed that the crystal possesses a good spherical shape with smooth and regular surface.

vrmgupta_05@yahoo.co.in