

Spherical agglomeration versus solid dispersion as different trials to optimize dissolution and bioactivity of Silymarin"

Abstract:

The aim of the present work was to develop spherical agglomerates and solid dispersions of silymarin in the presence of polyvinyl pyrrolidone. Silymarin and its products were characterized in terms of morphology, particle size, solubility, dissolution study, differential scanning calorimetry and Fourier transforms infra red spectroscopy. The therapeutic effects of optimized silymarin products compared to a commercially available silymarin were assessed by determining biochemical parameters and histopathological properties of the different silymarin products against carbon tetrachloride (CCl₄)-induced hepatotoxicity in rats. SEM studies showed that agglomerates were spherical in shape. Silymarin agglomerates (in presence of 0.75% PVP k-30) and solid dispersion with PVP k-30, 1:8 w/w exhibited better dissolution results and significantly reduced carbon tetrachloride-induced hepatotoxicity compared to its commercial product. In conclusion, spherical agglomeration and solid dispersion could be useful techniques for delivery of poorly water-soluble silymarin while affording excellent hepatic therapy