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Physicochemical Characterization and Improved *In Vitro* Dissolution Performance of Diacerein Solid Dispersions with PVP K30

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SUMMARY. **Solid dispersions (SDs) of poorly water soluble diacerein were prepared with polyvinylpyrrolidone K30 at drug to polymer ratios of 1:1, 1:3 and 1:5 w/w utilizing kneading technique. Physical mixture (PM) was prepared at drug to polymer ratio of 1:5 w/w for comparison. All formulations were further characterized by TLC, DSC, XRPD, SEM and dissolution studies. TLC indicated an absence of chemical interaction between drug and polymer. A prominent decrease in the crystallinity was accounted for diacerein in binary systems from XRPD data. DSC thermograms revealed a uniform molecular dispersion and generation of amorphous entities of drug accompanied by loss of crystalline and irregular shape with distinct changes in surface morphological features of diacerein detected in SEM photomicrographs. The drug dissolution properties of SDs were significantly improved (DP2: 95.87-100%) in comparison to crystalline diacerein and PM suggesting suitability of kneading method for improving the release rate properties of diacerein.**

KEY WORDS: Characterization, Diacerein, Dissolution, Polyvinylpyrrolidone K30, Solid dispersion.

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