

Low molecular weight polyethylene glycols as matrix to obtain solid dispersions of sulfanilamide

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Abstract

Objective: The objective of the present study is a determination of optimal ratios of polyethylene glycol:sulfanilamide at which formation of solid dispersion is observed. Also study the effect of the polymer on the limiting solubility of sulfanilamide in water. Methods: Using low-temperature differential scanning calorimetry (DSC), it was made possible to obtain solid dispersions of sulfanilamide with polyethylene glycols having average molecular weight 1000 and 1400. UV-spectroscopy was used to determine the effect of polymer on limiting solubility of sulfanilamide. Results: An optimal polymer:sulfanilamide ratios are 7:1 and 4:1 for PEG-1000 and PEG-1400, respectively. Polymer in a drug composition allows for the increase the sulfanilamide content in water up to 3.0 times as compared with the solution of individual drug. Conclusion: These promising materials can be used for manufacture of drugs in various forms: capsular drugs, ointment and suppositories.

Keywords

Differential scanning calorimetry, Polyethylene glycol, Solid dispersion, Sulfanilamide