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Research article

Formulation and evaluation of solid dispersions of an anthelmintic drug for enhancement of dissolution rate

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Key words: Solubility enhancement technique, solid dispersion, poorly water-soluble drug and Anthelmintics.

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Abstract

The purpose of present research work was to improve dissolution rate of Mebendazole which belongs to BCS II drug by enhancing its aqueous solubility using different hydrophilic carriers like PEG 6000 and Poloxamer 338. The various solid dispersion formulations were prepared by employing fusion and solvent evaporation method using different carriers. Further solid dispersion formulations were subjected to different *in-vitro* evaluation tests for solubility, drug content uniformity, drug-polymer interaction, DSC study and *in-vitro* drug release study. The results of drug content uniformity showed uniform dispersion of Mebendazole in solid dispersion formulations. To know the dispersion of drug in polymers used DSC study was carried out. The endothermic peak at 254.43°C due to Mebendazole was partially and completely disappeared in solid dispersion formulation indicating that drug was completely dispersed in formulations. *In-vitro* drug release showed 80.35% in 60minutes for the best solid dispersion formulation F3 (Mebendazole and Poloxamer 338 ratio 1:2) which was prepared using fusion method.