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Enhancement of Dissolution Rate and Bioavailability of Nifedipine by Chitosan Based Cocrystallization Technique

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Authors' contributions

This work was carried out in collaboration among all authors. Author Reetu designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors AS and AG managed the analyses of the study. Author AY managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

The objective of present study was to enhance solubility and dissolution behaviour of nifedipine by using cocrystallization method. A significant increase in solubility and dissolution rate of nifedipine has been demonstrated by solvent change method using chitosan. In this method, chitosan was precipitated on nifedipine crystals using sodium citrate as a salting out agent. An accurately weighed chitosan was dissolved in 1% acetic acid and drug was added in the chitosan solution. This resulting solution was added drop wise into 1% sodium citrate solution with continuous stirring. Sodium citrate precipitate polymer on drug crystals. FTIR, DSC, XRD, SEM, *In-vitro* dissolution studies, were studied for characterization of prepared cocrystals. Stability studies showed a good stability character of prepared cocrystals. Design Expert® software version 10.0 was used to develop polynomial models which were analysed to delineate the main effects for each CQA

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buccal mucoadhesive systems. Farmacia. 2013;61:703-12.

23. Qiao M, Chen D, Ma X, Liu Y. Injectable biodegradable temperature-responsive PLGA-PEG-PLGA copolymers: synthesis and effect of copolymer composition on the drug release from the copolymer-based hydrogels. Int J Pharm. 2005;294:103-12.

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