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Solubility and dissolution rate enhancement of Aceclofenac by solid dispersion technique

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The aim of this study is to change the solubility of poorly- water soluble, BCS Class-II drug Aceclofenac via SD technique. Aceclofenac is a non-steroidal anti-inflammatory drug (NSAID) having both anti-rheumatic, anti-inflammatory and analgesic actions. But, one major problem associated with this drug is its poor solubility in biological fluids, which results into low bioavailability after oral administration. The present objective undertaken was achieved by the formulation of solid dispersions of Aceclofenac with various hydrophilic polymers/carriers (like Urea, Mannitol, PEG-4000 and PEG-6000) in different ratios (like 1:1, 1:2 & 1:3) by solvent evaporation method. The saturation solubility profile of formulated SDs and pure drug was done and 4 formulations like FAC-III, FAC-VI, FAC-IX, FAC-XII, out of total 12 formulations showed good solubility profile and out of these 4 formulations, only FAC-IX (1:3 drug:urea) showed highest in-vitro dissolution rate carried out in USP Type II Disssolution Apparatus and maximum drug release of 79.3% within 3 hours study was observed in comparison to 31.2% of drug release within 3 hours from marketed immediate release tablet in phosphate buffer (pH 7.4). The pure drug and formulated SDs were charaterized by FTIR, SEM for drug interaction and surface morphology respectively. The selected formulations were evaluated for drug content, wetting time etc.

Biography

Khalid Bashir Mir is pursuing his Ph.D. in Novel Drug Delivery Division (NDDD) at Department of Pharmaceutical Sciences, University of kashmir. He has passed his Masters in Pharmaceutical Sciences with distinction and merit scholarship and a gold medal from university of kashmir for being the 1st Rank holder in M.Pharm. He has attended many congresses, seminars, workshops and communicated his research workings.

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