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Development of an Erodable Matrix Drug Delivery Platform for Controled Delivery of Non Steroidal Anti Inflamatory Drugs Using Melt Granulation Process

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Abstract : Even though a number of non-steroidal anti-inflammatory drugs (NSAIDS) are available with different chemistries, they share a common solubility characteristic that is they are relatively more soluble in alkaline environment and practically insoluble in acidic environment. This work deals with developing a wax matrix drug delivery platform for controlled delivery of three model NSAIDS, Diclofenac sodium (DNa), Mefenamic acid (MA) and Naproxen (NPX) using the melt granulation technique. The aim of developing the platform was to have a general understanding on how an erodible matrix system modulates drug delivery rate and extent and how it can be optimized to give a delivery system which shall release the drug as per a common target product profile (TPP). Commonly used waxes like Cetostearyl alcohol and stearic acid were used singly an in combination to achieve a TPP of not 15 to 35% in 1 hour and not less than 80% Q in 24 hours. Full factorial design of experiments was followed for optimization of the formulation.

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