

Formulation and evaluation of sustained release dosage form of Nifedipine hydrochloride using multi-unit chitosan treated alginate

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The main objective of the present work was to develop sustained release matrix tablets of water soluble Nifedipine hydrochloride using multi-unit chitosan treated alginate. Sustained release formulation is the drug delivery system that is designed to achieve a prolonged therapeutic effect by continuously releasing medication over an extended period of time after administration of single dose. Here the release of orally administered drug depends on the residence time of dosage form in the GIT. In the sustained release formulation of Nifedipine as the dose administration is reduced, increases patient compliance. This formulation exhibit neither very slow nor very fast rates of absorption and excretion. The sustained release formulation of nifedipine is absorbed uniformly from the entire gastro-intestinal tract. It is administrated orally in relatively small dose of 20 mg. The addition of chitosan increased the swelling of multiple unit systems (MUS) in acidic conditions and reduced the drug release from MUS. The MUS retained in gastrointestinal tract (GIT) for more than 12 h and distributed throughout the GIT. This study demonstrates that the matrix type chitosan treated alginate MUS can be a good addition to sustained release tablets to deliver Nifedipine hydrochloride and expected to be less of an irritant to gastric and intestinal mucosa.

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