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Formulation & characterization of nicorandil and budesonide loaded drug delivery using Diffucap technology

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Multiparticulate systems are specifically suitable for achieving controlled or delayed release oral formulations with smallest amount of risk of dose dumping, flexibility of combination to achieve different release patterns, less gastric residence time (pellets, granules, microparticles, nanoparticles, etc.). Pelletization is referred to as an agglomeration process, that converts fine powders or granules of bulk drugs into small, free flowing, spherical or semispherical units called as pellets. Aim of the current study was to formulate, evaluate and perform *in vitro* drug release studies of multiparticulate-pulsatile-controlled drug delivery of Nicorandil and Budesonide using Diffucap technology with Ethyl Cellulose 7, 10, 20 Cps as CR polymers and Eudragit S 100, PL 100 as time controlled polymers. Drug–polymer compatibility studies were performed by using FTIR, surface morphology for the pellets was studied by SEM analysis. The *in vitro* drug release studies were performed using USP dissolution test apparatus type I and the results were used to optimize the best combination of controlled release and pulsatile release polymers to get desired lag time of 6 hrs and drug release for about 12 hrs.

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