Nimesulide Sustained Release Matrix Pellets Prepared by Extrusion/Spheronization

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Abstract:

Nimesulide sustained release matrix pellets containing 10 % w/w of the drug were prepared using an extrusion-spheronization technique. Different polymers, ethyl cellulose, Kollicoat, mannitol, lactose and polyethylene glycol (PEG 2000), were mixed at different weight ratios (5, 10 and 20 % w/w) with Avicel PH 101. Mixer torque rheometer (MTR) was used to quantitatively determine the suitable pellets' moisture content before the extrusion process. The studies revealed that magnitude of torque decreased as the polymer concentration increased. The in vitro release of nimesulide from pellets was dependent upon the type and concentration of the added polymer, which affected the peak torque of the wet mass. In conclusion, the formulation of nimesulide sustained release matrix pellets successfully controlled the drug release, which might be beneficial in lowering the risk of side effects and improving patient convenience as an advantage of the pellets as a drug delivery system.

Keywords:

Anti-inflammatory, extrusion/spheronization, hydrophilic polymers, hydrophobic polymers, nimesulide, sustained release matrix pellets.

Published In:

Latin American Journal of Pharmacy, Vol. 35, No. 8, pp. 1861-1870