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Sweet Basil Seed Mucilage as a Gelling agent in Nasal Drug Delivery

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Abstract : Intranasal gel formulation with mucilage of natural origin has been potentially explored as an alternative dosage form of drug administration. The purpose of present investigation was to develop paracetamol loaded nasal gel with sweet basil seed mucilage (BSM) as a gelling agent obtained by thermal-hydration process and to characterise both mucilage as well as the gel formulations. Phytochemical screening of BSM reveals it to be rich in carbohydrates. The FT-IR spectrum of the mucilage exhibits the presence of O–H, C–H, and $–COO^-$. The mucilage showed high swelling index of 462% and relative viscosity of BSM dispersion (0.25% w/v) in nasal medium was found to be 2.94 at 25^0 C. Nasal gel formulations demonstrated satisfactory pH, spreadability, extrudibility and drug content. The *in vitro* release profile of G1 (6%w/w BSM) demonstrated almost 95% release with Korsmeyer-Peppas kinetics with highest values of permeability coefficient and steady-state flux. Other formulations with 8-10%w/w BSM exhibited 70-80% release within 2.5 hours. G2 and G3 followed zero order kinetics with quasi-Fickian diffusion. The study indicates that G1 (6 %w/w BSM) can be selected for nasal gel formulation which may be used for in vivo studies in future.
Keywords : Intranasal gel, Mucilage, Quasi-Fickian, Sweet basil seed.

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