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Formulation and Evaluation of Transdermal Patches of Pantoprazole Sodium

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Abstract: *Transdermal patches represent a promising alternative to conventional oral and parenteral delivery systems for pantoprazole sodium, aiming to enhance patient compliance and therapeutic efficacy in the management of peptic ulcers and related conditions. This review summarizes the various formulation strategies employed, focusing on polymer combinations such as hydroxypropyl methylcellulose (HPMC), polyvinylpyrrolidone (PVP), and Eudragit L100, applied via the solvent evaporation method to develop flexible and uniform patches. Key evaluation parameters, including thickness, folding endurance, weight and content uniformity, swelling index, moisture content and uptake, surface pH, and in vitro release profiles, are discussed based on current research findings. Results from multiple studies demonstrate that these transdermal formulations exhibit controlled and prolonged drug release, with some formulations achieving over 93% release over 24 hours, thus maintaining therapeutic plasma concentrations and bypassing first-pass metabolism. The review also covers critical aspects of drug-polymer compatibility, release kinetics, and skin permeability assessments, affirming that pantoprazole sodium transdermal patches potentially offer enhanced bioavailability and reduced dosing frequency. Overall, transdermal patches are positioned as a feasible and effective system for the sustained delivery of pantoprazole sodium, warranting further clinical investigation and optimization.*

Keywords: Transdermal patches, Pantoprazole sodium, In vitro release, Skin permeability

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