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Formulation and Evaluation of Buccal Patches

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Abstract: *The present study focuses on the formulation and evaluation of buccal patches of Ctz Hcl designed to provide sustained release and improved patient compliance in allergic conditions. Buccal patches were prepared by solvent casting using hydroxypropyl methylcellulose (HPMC K4M) as the primary polymer, along with varying concentrations of plasticizers including polyethylene glycol 400, propylene glycol, and glycerin. The prepared patches were evaluated for their physicochemical properties, including thickness, uniformity of weight, folding endurance, surface pH, drug content, tensile strength, extensibility, swelling index, mucoadhesive strength, and in vitro drug release. Results revealed that increasing polymer concentration led to enhanced mechanical strength and folding endurance but reduced extensibility. All formulations maintained near-neutral surface pH and uniform drug content, indicating minimal risk of mucosal irritation and efficient drug entrapment. Among the batches, formulation F4 exhibited an optimal balance of tensile strength (3.5 N/mm²) and extensibility (22 mm), along with satisfactory folding endurance and drug release characteristics, making it a promising candidate for buccal delivery of Ctz Hcl. The study underscores the critical role of polymer and plasticizer optimization in achieving desirable mechanical and release profiles for effective buccal drug delivery systems.*

Keywords: Ctz Hcl; buccal patches; HPMC K4M; solvent casting; tensile strength; folding endurance; mucoadhesion; sustained release

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