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Development and Evaluation Buccal Tablets

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Abstract: *The present study was undertaken to develop and evaluate buccal tablets of Cinnarizine intended for prolonged mucosal residence and controlled drug release. Tablets were prepared by wet granulation using varying concentrations of t gum and sodium carboxymethyl cellulose as bioadhesive polymers, along with microcrystalline cellulose, talc, saccharin, magnesium stearate, and eucalyptus oil. The prepared formulations were evaluated for weight variation, hardness, thickness, friability, drug content uniformity, ex vivo mucoadhesion time, surface pH, swelling index, bioadhesive strength, in vitro drug release, and stability under ICH guidelines. All formulations exhibited uniform weight, acceptable hardness (5.54–6.43 kg), low friability (<1%), and consistent drug content (99.82–102.82%). Mucoadhesion time varied notably among formulations, with F6 showing the highest (460 ± 2.5 min), indicating prolonged mucosal contact. In vitro release studies revealed that formulations with higher polymer content, particularly F6, provided sustained release profiles over 3 hours, correlating with extended mucoadhesion. The optimized batch F6 demonstrated an ideal balance of mechanical strength, prolonged adhesion, controlled release, and surface pH close to salivary pH, making it a promising candidate for buccal delivery of Cinnarizine to enhance bioavailability and patient compliance.*

Keywords: Cinnarizine; buccal tablets; mucoadhesion; t gum; sodium carboxymethyl cellulose; controlled release; bioadhesive strength; in vitro release; stability studies

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