

## DEVELOPMENT OF BUCCAL FILMS WITH ANTIBACTERIAL AND ANTI-INFLAMMATORY EFFECT

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**Introduction.** Buccal films are a promising drug delivery system due to their ability to deliver drugs directly to the systemic circulation, bypassing the gastrointestinal tract and avoiding first-pass metabolism. In this study, we aimed to develop buccal films with antibacterial and anti-inflammatory effects for the treatment of oral infections.

**The aim of the study.** The main objective of the study was to develop buccal films containing an antibacterial agent and an anti-inflammatory agent and to evaluate their physicochemical properties.

**Methods of research.** The buccal films were prepared using the solvent casting method. The polymer used was hydroxypropyl methylcellulose (HPMC) and the plasticizer used was glycerol. The antibacterial agent used was ciprofloxacin hydrochloride, and the anti-inflammatory agent used was diclofenac sodium. The physicochemical properties of the films, including thickness, weight, folding endurance, tensile strength, and percentage elongation at break, were evaluated.

**Main results.** The results showed that the films were transparent and had good mechanical properties. The thickness of the films ranged from 0.2 to 0.3 mm, and the weight ranged from 40 to 60 mg. The folding endurance was found to be greater than 300, indicating good flexibility of the films. The tensile strength was found to be in the range of 6.5-8.5 MPa, and the percentage elongation at break was found to be in the range of 80-100%. These properties indicated that the films were strong and flexible enough to be applied to the buccal cavity. The films also exhibited good drug content uniformity and drug release characteristics.

**Conclusions.** In conclusion, buccal films containing ciprofloxacin hydrochloride and diclofenac sodium were successfully prepared using the solvent casting method. The films had good mechanical properties and drug release characteristics, indicating their potential for use in the treatment of oral infections. Further studies are needed to evaluate their pharmacological activity in vivo.