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Formulation and investigation of buccal mucoadhesive films for improving buccal absorption

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Oral mucosa is simply accessible and highly vascularized, which means direct access to the systemic circulation, bypassing the liver first-pass effect, in addition to further advantages. Therefore, mucoadhesive dosage forms – especially films – are a promising delivery alternative to various drugs [1]. Among the mucoadhesive film-forming polymers, chitosan is a good candidate with several advantages. Chitosan is a safe, biocompatible, and biodegradable polymer with adequate mucoadhesive properties, in addition to permeation enhancer properties, which could be improved by polymer salification with ascorbic acid [2, 3].

The main aim of our research is to investigate the permeation of different active pharmaceutical ingredients with different log P through the buccal mucosa using chitosan ascorbate-based mucoadhesive films. Films will be prepared by the solvent casting method. In vitro mucoadhesion, tensile strength, film thickness, drug content uniformity, and other film properties will be evaluated.

Another aim of this work is to get to know the process parameters and material attributes influencing the studied parameters, and to optimize the composition of the films based on the results by factorial design. Ideal buccoadhesive films should be safe, nontoxic, with good mechanical strength, immediate adherence to the buccal mucosa, and should achieve controlled drug release in addition to adequate patient compliance [4].

References:

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