

## 16. THE ROLE OF POLYMERS IN THE DEVELOPMENT OF SOME ADHESIVE FORMS



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**Introduction.** Oropharyngeal preparations represent a modern trend in the technology of solid forms, which have been developed to overcome some disadvantages of other forms (complex manufacturing, variable stability). These pharmaceutical forms (bioadhesives) present solid, semi-solid or liquid preparations, containing one or more active substances, intended for administration in the oral cavity or pharynx, in order to obtain a local or systemic action.

**Aim of study.** Study of bioadhesive polymers and their role for the formulation of mucoadhesive oral tablets.

**Methods and materials.** Study of pharmaceutical and medical literature using electronic databases such as: Scopus, Pubmed and EBSCO.

**Results.** Mucoadhesive oral tablets that consist of monolithic matrices or multilayered matrices are part of the oropharyngeal forms. Currently, this type of tablets are prepared using efficient and modern technologies based on polymers, so they can contain large amounts of medicinal substances, which, depending on the way of incorporation, can be released throughout the oral cavity. Formulations with bioadhesive polymers are used to prolong the contact of pharmaceutical forms with the oral mucosa and to modify the release profile of medicinal substances. As mucoadhesive polymers for the preparation of oral mucoadhesive tablets, the following are often used: natural polymers (chitosan, sodium alginate); semi-synthetic polymers (sodium carboxymethylcellulose, hydroxypropylcellulose, hydroxypropylmethylcellulose, hydroxyethylcellulose); synthetic polymers (carbopols, polyvinylpyrrolidone). A mucoadhesive polymer must possess the following characteristics: be non-toxic and non-absorbable; to be non-irritating to the mucous membrane; to adhere quickly to wet epithelium; to present site specificity; to easily incorporate the medicinal substance and to yield it easily. Thus, oral bioadhesive tablets based on bioadhesive polymers ensure the release of the substance in a certain area for a longer time, with the aim of increasing bioavailability.

**Conclusion.** The development of systems for the release of medicinal substances in the oral cavity could be a solution to the access of substances in the systemic circulation. The quantity of the released and absorbed substance is directly correlated to the nature and type of the polymer present in the bioadhesive tablets.