DEVELOPMENT OF ORALLY DISINTEGRATING FILMS BASED ON BIOPOLYMERS AND PLANT EXTRACTS

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One of the most progressive pathologies in the world are various oral cavity infections. Developing the new ways to treat these diseases are very important. Orally disintegrating films (ODFs) are thin, flexible films made of hydrophilic polymers, pharmacologically active substances, plasticizers, flavorings, dyes and sweeteners. There are many reports on films that quickly disintegrate in the oral mucosa and immediately release biologically active components into the systemic circulation. However, self-disintegrating films with prolonged activity are still underexplored and could be effective method for the local treatment of periodontal diseases, caries, stomatitis, and other infections in the oral cavity.

The main goal of this research work was the formation of multi-layered ODFs from various biopolymers and natural plant extracts and investigation of their properties. Polymeric films of various composition were formed by solvent casting method using chitosan, hydroxyethyl cellulose, hydroxypropyl cellulose, methylcellulose, cellulose acetate, polyvinyl alcohol, emulsifier Tween80, plasticizer glycerin and cross-linking agent citric acid. The hop extract both in pure and encapsulated forms was immobilized in the polymer films. The mechanical, thermal and hydrophobic properties of the various films were evaluated. Moreover, the solubility and swelling in artificial saliva solution was determined. The release of bioactive components from polymer films into saliva model solution was investigated by using spectroscopic method. More than 85.7 percent of hop extract were released from the polymeric films into the saliva simulant within 168 hours.

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