BILAYER POLYSACCHARIDE FILMS CONTAINING FERMENTED AND NON-FERMENTED ARTHROSPIRA PLATENSIS EXTRACTS

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Orally disintegrating films (ODFs) are thin, flexible drug delivery systems that dissolve in the oral cavity to release active compounds locally [1]. Due to their rapid disintegration and ease of administration, ODFs are promising carriers for the local oral delivery of natural antioxidants in the treatment of oral cavity diseases such as periodontitis and gingivitis [2]. Arthrospira platensis extract is rich in proteins, phycocyanins, and phenolic compounds, and has been widely investigated as a source of antioxidant and anti-inflammatory agents [3]. These properties make it a promising bioactive material for incorporation into ODFs.

Main goal of this research work was the development of novel orally disintegrating bilayer films composed of polysaccharides and non fermented or lactic fermented Arthrospira platensis extracts and investigation of their properties. Bilayer films composed of a methyl cellulose and chitosan/hydroxyethyl cellulose layers, with glycerol and citric acid used as the plasticizer and crosslinker, respectively, were prepared using the solvent casting method. Non-fermented and lactic-fermented Arthrospira platensis extracts were immobilized in either layer. The main characteristics of the bilayer films including wetting, mechanical properties, bioactives release in a simulated salivary medium and antioxidant activities were evaluated.

Acknowledgements

This project has received funding from the Research Council of Lithuania (LMTLT), agreement No S-MIP-23-78.

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