



THE INFLUENCE OF THE TYPE AND CONCENTRATION OF PLASTICIZER ON THE PROPERTIES OF BIOPOLYMER FILMS BASED ON WILD FLAX (*CAMELINA SATIVA*)

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ABSTRACT

The development of biodegradable packaging materials using naturally occurring, renewable biopolymers has gained attraction due to consumer demand for high quality products and concerns about the environmental waste problems. However, the inferior mechanical properties and low water resistance of packaging materials based on natural polymers pose a significant obstacle to their wider use. One of the ways to improve the properties of biopolymer-based packaging materials is the addition of plasticizers during their synthesis. In this work, the influence of the type and concentration of plasticizer on the properties of new biopolymer films based on wild flax (*Camelina Sativa*) was investigated. *Camelina Sativa* oil cake (CSoC) remains after edible oil cold pressing as a by-product. One of the possibilities for its valorization is the synthesis of biopolymer materials. During the synthesis, different plasticizers - glycerol and polyethylene glycol 400 - were added in different concentrations - 20%-60%. The obtained CSoC-based biopolymer films were analyzed for the following properties: Moisture content, solubility, thickness, tensile strength, elongation at break and water vapor permeability. The results obtained showed significant differences when different plasticizers were applied at different concentrations. The biopolymer film with optimal properties was obtained by adding glycerol at a concentration of 40%.

Keywords: biopolymer films, Camelina Sativa, plasticizers, properties

Acknowledgements: This research was funded by Provincial Secretariat for high education and scientific research activity, Autonomous Province of Vojvodina, Republic of Serbia, grant number 142-451-3059/2023-01/02 and by Ministry of Science, Technological Development and Innovation of the Republic of Serbia, grant number 451-03-66/2024-03/200134