

Proceeding Paper

Effects of Processing Conditions of High Hydrostatic Pressure (HHP) on Gelling Abilities and Properties of Inulin—Soy Protein Hydrogels [†]

Anna Florowska ^{*}, Tomasz Florowski, Patrycja Goździk and Adonis Hilal

Warsaw University of Life Sciences-SGGW

^{*} Correspondence: anna_florowska@sggw.edu.pl

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The aim of the research was to determine the effect of processing conditions of high hydrostatic pressure (HHP) on gelling abilities and properties of inulin—soy protein hydrogels. The induced gels consisted of 20% inulin and 1% and 6% soy protein isolate. The pressure treatments were 150, 300 and 500 MPa for 5, 10 and 20 minutes. The obtained gels and the control sample (obtained under normal conditions of 0.1 MPa) were analyzed for ability to form gel structure (VGI), yield stress, texture and spreadability, microreological properties, stability and color parameters.

Based on the conducted research, it was found that inulin-protein hydrogels can be induced by the high hydrostatic pressure. It was also noticed that the use of high hydrostatic pressure in the case of hydrogels with a lower soy protein addition (1%) caused a decrease in the yield stress and texture parameters compared to the control sample, however, the observed changes were not found in the case of hydrogels containing a higher protein concentration (6%). Moreover, it was found that the use of lower pressure (150 MPa) for induction of protein-polysaccharide hydrogels resulted in obtaining gels with lower values of spreadability parameters compared to the control sample, while similar observations were not made for hydrogels induced by higher pressures (300 and 500 MPa). The use of high-pressure induction also extended the destabilization time of the tested hydrogels, and it was also found that the processing conditions did not change the color of the obtained hydrogels.

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