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2025 IFT-NPD/EFFoST Nonthermal Processing Workshop

非热加工技术助力可持续发展

Sustainable Innovations in Nonthermal Processing

会议摘要

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2025年10月10-13日 | 中国·北京　　October 10-13, 2025 | Beijing, China

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Impact of high-pressure processing on rheological and physical properties of dysphagia-friendly beverages

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This study evaluates the effect of High-Pressure Processing (HPP) on the functional and physical properties of thickened beverages formulated for individuals with swallowing difficulties (dysphagia). A fixed blend of xanthan gum, pea protein, and carboxymethyl cellulose was subjected to HPP treatments at 200–600 MPa for 3 min. Rheological properties, pH, clarity, and total soluble solids were analysed to assess structural stability and flow behaviour. The combination of plant-based protein and hydrocolloids enhanced the physical properties of all treated formulations. Each formulation consistently met the IDDSI Level 3 criteria, ensuring safe swallowing for individuals with dysphagia. Notably, treatment at 600 MPa resulted in improved clarity ($p<0.05$) and a slight reduction in viscosity ($p>0.05$), while still maintaining the target consistency range. These findings demonstrate HPP as a promising non-thermal method for producing dysphagia-friendly beverages, underscoring the synergistic effect of pea protein and xanthan gum in texture-modified formulations.


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