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Rheological and structural changes of polymerized whey protein after heat treatment

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Rheological property and structure changes of whey proteins as functions of pH (6-8), heating time (5-30 min) and temperature (70-95°C), and protein level (6-11%) were systematically investigated. Flow behavior at first day and shelf life of 7 days as function of shear rate were measured by a Rheometer. The structure changes were determined by FTIR and UV-CD spectrometer. The shear viscosity profiles of all heated dispersions were similar. Heating time and pH had more pronounced impacts on viscosity stability than other factors. Compared with native sample, all heated samples showed increased α -helix content. pH and heating time had more significant impact on the structure changes on polymerized whey protein. α -Helix content increased with increased temperature. Large aggregates were observed at whey protein samples heated at high temperature above 85°C. As protein concentration increased, bands at higher region become darker.

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