

Hempseed meal protein isolates prepared by different isolation techniques. Part II. gelation properties at different ionic strengths

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#### Abstract

The effect of isolation technique and sodium chloride level (0, 50, 300 mM, at pH 7.0) on [gelation](#) of hemp protein isolates was investigated. The aqueous dispersions (30% w/w) prepared from micelle (salt extracted) protein isolate (HMI) behaved more as concentrated liquid-like dispersions, while the dispersions prepared from the alkali extracted/isoelectric precipitated protein isolate (HPI) had a paste-like consistency. Although changes in NaCl concentration did not have a pronounced impact on the rheological properties and microstructure of HPI dispersions, an increase in NaCl concentration led to HMI protein isolate aggregation. On heating, both HMI and HPI formed gels as indicated by dynamic oscillatory rheological measurements. Confocal micrographs have shown that the HPI gels had a granular, particulate structure, while the HMI gels had cellular-like structure formed from thin strands. In the case of HMI gels, 300 mM NaCl concentration caused intensive [protein-protein interactions](#), which resulted in the formation of an aggregate structure with larger pore sizes in comparison to HMI gels prepared from low salt (50 mM NaCl) or without salt aqueous dispersions. On the contrary, NaCl addition slightly affected the HPI gels microstructure in terms of preservation of protein globular structure.