

## **Effect of Pulsed Electric Field on Structural Modification and Thermal Property of Whey Protein Isolate**

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This study evaluated structural modification and thermal property of whey protein isolate (WPI) treated by pulsed electric field (PEF). Structural modification and changes in thermal properties of WPI were evaluated by using differential scanning calorimetry (DSC) and fluorescence spectroscopy (FS) techniques. The effect of PEF treatments (electric field intensity ranging from 12, 16 and 20 kV/cm and pulse numbers ranging from 0-30) on intrinsic tryptophan fluorescence and extrinsic 1-anilino-naphthalene-8-sulfonate (ANS) fluorescence of WPI were studied. The apparent enthalpy and the peak temperatures of denaturation of PEF-treated WPI samples were modified by PEF treatments. Whey protein was denatured by about 35% when treated by PEF at the electric field intensity of 20 kV/cm and 30 pulses. PEF treatments of WPI resulted in an increase in intrinsic tryptophan fluorescence intensity and a 4 nm red shift. There was an increase in extrinsic ANS fluorescence intensity which showed change in the surface hydrophobicity of WPI. The results of this study indicated that the PEF treatments affected structural modification and thermal properties of whey protein isolates.