

Comparative experiments of electrical conductivity from two different aggregates of whey protein concentrates film: amyloid fibril and conventional aggregation

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Summary

This Research Paper compared the electrical conductivity from two different aggregates of whey protein concentrates film: amyloid fibrils at a low pH far away from the isoelectric point (pH 2.0) and amorphous aggregation at natural pH (pH 6.5). The two types of films fabricated by these solutions with different aggregate structures shown large variations in electrical conductivity and other properties. The WPC fibril film (pH 2.0) exhibited 1.31 times higher electrical conductivity than that of the conventional WPC film (pH 6.5), improved mechanical properties and oil resistance, due to varying morphology, higher surface hydrophobicity and more surface charge of film-forming solutions. The evidence from this study suggests that fibrillized WPC with high-ordered and β -sheets-rich structures fabricated high-conductive film, which broadens the potential application of fibrils as functional bionanomaterials.