Impact of stirring speed on β-lactoglobulin fibril formation

ABSTRACT

β-Lactoglobulin (β-lg) can produce fibrils that have multi-functional properties. Impacts of different stirring speeds on characteristics of β-lg fibrils as a stable form in β-lg fibril solutions were investigated. Fibril concentration, fibril morphology, turbidity, particle size distribution, zeta potential, and rheological behavior of solutions were studied. Stirring enhanced fibril formation and stability of a fibril solution, in comparison with unstirred solutions. Increasing the stirring speed produced more turbidity and a greater distribution of particle sizes, higher viscosity values, but no differences in zeta potential values of β-lg fibril solutions. However, a high stirring speed is not feasible due to reduction of the fibril yield and changes in fibril morphology.

Keyword: Fibril; β-lactoglobulin; Stirring; Zeta potential; Morphology