SCALING OF CREEP-COMPLIANCE CURVES OF B-LACTOGLOBULIN BASED INTERFACES OF VARIOUS NATURE

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In the present work, linear and non-linear interfacial shear rheological properties [1] of β-lactoglobulin based systems [2,3], were probed at the oil-water interface. Those systems that include β-lactoglobulin fibers allow for the generation of impressively stable emulsions and foams, and may be of interest for various industrial applications. Investigations were carried after a long time of adsorption and aging (16.7 hours), at pH 2 and low ionic strength, where there is a major contribution of repulsive interactions [3-5]. The rheology of the systems then appears like glassy, i.e. the distribution of relaxation times is very broad [5]. The systems include native monomers and heat-induced β-lactoglobulin fibers (dialysed or not), of two different lengths. Remarkably, all creep-compliance curves could be superimposed using a single multiplicative factor for each within the window probed 1 – 1000s. They could be fitted to the function $J(t) = J_0 + b.t^{\alpha}$, with the same α value and ratio J_0/b for all systems [5]. Similar results in terms of the slow dynamics of protein interfaces were obtained by other groups [6,7].

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