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Interaction of cinnamic acid and its analogues with Pluronic® micelles

The interaction of cinnamic acid (CA) and its analogues viz. p-coumaric acid (PCA) and caffeic acid (CFA) with core-shell micelles of a moderately hydrophobic Pluronic® P123 has been investigated using cloud point (CP), viscosity, dynamic light scattering (DLS), small-angle neutron scattering (SANS) and steady-state fluorescence measurements. These solubilizates alter micellar behaviour of copolymer solution dependant on their hydrophobicity. P123 micelles exhibit time-dependent restructuring and growth processes and at different rates which is pH dependent and responsive to the presence of a salt. Observed results demonstrate that restructuring and growth of polymer micelles can be tuned with ease upto a substantial extent just by changing the concentration of the additives and the pH of the solution. Considering the medical applications of cinnamic acid and its analogues and of Pluronic® in drug delivery systems, the present study can provide important insight of the possible time-dependant delivery mechanism of drugs.

Topic

Biology

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