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Influence of polymer structure on recovery of proteins in two-phase aqueous systems.

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Abstract

The partitioning of different proteins in two phase aq. solns. of hydrophobically modified polyacrylamide and polyethylene glycol was investigated. Multiblock copolymers of acrylamide with different allyl polymers of varying hydrophobicity and spacer length were synthesized. The allyl polymers are used because they can form hydrophobic domains that are positioned far away from steric hindrance caused by acrylamide main chain. The phase diagrams of the aq. block copolymer solns. with polyethylene glycol were studied. The effect of block hydrophobicity on partitioning of the different proteins which are characterized by different mol. wts. and isoelec. points was investigated. Polymers with stronger hydrophobic domains were found to produce higher partitioning coeffs. of the proteins.