

Effect of aliphatic solvents on reverse self-assembled structures by mixtures of lecithin and salts

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It is well-known that lecithin, two-tailed surfactant, forms reverse spherical micelles through self-assembly in nonpolar solvents. When salts are added to lecithin solutions (sols), the spherical micelles grow into long cylindrical micelles, inducing the formation of organogels. The interactions between lecithin and salts play important roles in the formation of the gels. In this study, we investigated the effect of aliphatic solvents on reverse self-assembled structures by mixtures of lecithin and salts. The solvents with a high number of hydrocarbons induced the formation of organogels more efficiently and the gels were stronger and stiffer. The strength of the gels and the interactions between lecithin and salts were studied by rheometer and the FT-IR instrument, respectively. We also confirmed the self-assembled structures in the gels such as reverse cylindrical micelles using Small-Angle X-ray Scattering (SAXS).