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New α -Hydroxy Phosphorus Amphiphiles: Polymorphism of Their Supramolecular Assemblies

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NEW α -HYDROXY PHOSPHORUS AMPHIPHILES: POLYMORPHISM OF THEIR SUPRAMOLECULAR ASSEMBLIES

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As analogues of natural phospholipids, the main components of biological membranes, synthetic phosphorus amphiphiles, have broad potential applications in various fields: as models of natural membranes and as drug carriers, to name just a few. Here, we report the synthesis¹ and the molecular aggregation^{2,3} of new (α -hydroxy-alkyl)phosphinic acid amphiphiles.

These new synthetic phosphorus surfactants are easily prepared in good yields from commercially available aqueous hypophosphorous acid and long-chain aldehydes under sonication. In aqueous solutions, these compounds form micelles and lyotropic liquid crystals as a function of the concentration. In an organic solvent, they form translucent, birefringent, and thermoreversible organogels. In pure form, they also self-organize into thermotropic liquid crystals as a function of the temperature.

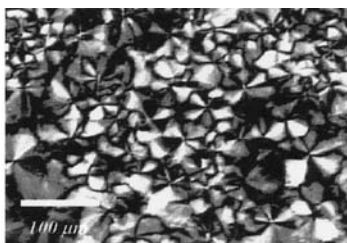
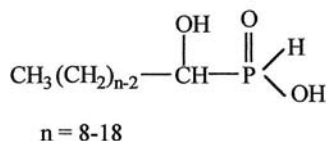


FIGURE 1

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