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Controlling the Size of Vesicles Prepared from Egg Lecithin using a Hydrotrope

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Abstract

Phase diagrams were constructed using egg lecithin as a source of lipid, sodium xylenesulfonate as the hydrotrope, and various aqueous media. The resulted oil-in-water microemulsion (L_1) region was utilized to prepare unilamellar vesicles by diluting the microemulsion with equal amount of the aqueous media. When the ratio of lecithin/SXS was adjusted in the original micellar solution the average size of the corresponding vesicles that formed upon dilution of the L_1 phase changed accordingly. An increase in the ratio of lecithin/SXS resulted in a linear increase of average vesicle size, ranging from 75 to 500 Å nm. This correlation can be explained with the predictable change in the curvature of a vesicle when sufficient amount of hydrotrope was incorporated. The slope of this linear relationship is influenced by the polarity of the medium and the presence of molecules that can intercalate into the lipid bilayer.



Keywords

hydrotrope; vesicles; liposomes; lecithin; sodium xylenesulfonate; micelles; lamellar liquid crystals; phase diagrams; lipids; surfactant

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Lecithinâ€™ technological, biological and therapeutic aspects. Edited by I. Hanin and GB Ansell. Plenum Press, New York, no of pages: 196.

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