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Spherical Agglomeration of Calcium Carbonate Dispersed in Aqueous Medium Containing Sodium Oleate.

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It was found that calcium carbonate particles dispersed in aqueous medium with sodium oleate were agglomerated spherically by adding and agitating a small amount of organophilic liquid, termed bridging liquid, e. g. benzene, kerosene and amyl acetate, whereas the agglomeration was not accomplished in the system without sodium oleate. This phenomenon was explained by the preferential wetting of the sodium oleate-treated calcium carbonate by the bridging liquid. Sodium oleate concentration in the medium determined the settling velocity and the sedimentation volume of agglomerates or flocs of calcium carbonate. The size distribution of agglomerates was dependent on both the concentration of sodium oleate and the type of bridging liquid used.

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Mobility of fluorescent probe molecules in lipid bilayer vesicles as studied by steady-state and time-dependent nuclear Overhauser effect measurements in ^1H -nuclear magnetic resonance spectroscopy.

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In order to elucidate the mobilities of the fluorophores of fluorescent 2- and 16-(9-anthroyloxy) palmitic acids (16-AP and 2-AP, respectively) in lipid bilayer vesicles, the steady state and time-dependent nuclear Overhauser effects in ^1H -NMR spectroscopy, but not the fluorescence depolarization in fluorescence spectroscopy, have been measured. The steady-state nuclear Overhauser effect measurement showed an appreciable magnitude of negative nuclear Overhauser effects between the resonances due to the fluorophores of the two fluorescent probes and lipids.

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Effects of EDTA Derivatives on the Photoreduction of Methyl Viologen by a Thiocarbocyanine Sensitizer in a Micellar Solution.

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The photoinduced reduction of Methyl Viologen (MV^{2+}) by ethylenediaminetetraacetate (EDTA), 1,2-propanediamine-N,N,N',N'-tetraacetate (MeEDTA), and trans-1,2-cyclohexanediamine-N,N,N',N'-tetraacetate (CyDTA) was investigated by using 3,3'-dioctadecylthiocarbocyanine (C^{+}_{18-18}) as a sensitizer in a micellar solution of a nonionic surfactant, heptaethylene glycol monododecyl ether. The production rate of reduced Methyl Viologen (MV^+) decreased with the light-irradiation time, while the deceleration increased in the order of: $\text{CyDTA} < \text{MeEDTA} < \text{EDTA}$.