# AQUEOUS MICELLE SOLUTIONS AS A MODEL SYSTEM FOR ENERGY TRANSFER BETWEEN PHOTOSYNTHETIC PIGMENTS

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Molecular organisation has a vital role in complex biochemical processes. Components of metabolic pathways are compartmentalized in membranes. Photochemical and photophysical investigationx of systems which mimic membrane functions is an extremly active area of current research. These model systems may surve evolutionary precursor of contemporary pigment-containing systems e.g. photosystems.

The obgectives of this work is studying the solubilizing ability of different detergents micelles : nonionic triton X-100 (TX-100), anionic sodium dodecyl sulfate (SDS) and cationic cetiltrimethylammonium bromide(CTBr) and spectral-luminescent parameters of chlorophyll a (Chl), protochlorophyll a (PChl) including in such micelles and energy transfer (ET) between them also. Solubilization of pigments and deaggregating effect of the studied micelles decreased in the following order:TX-100,CTABr,SDS. Increasing of molecules pigment number (Z) per micelle for all detergents leads to changes in spectral properties,and decreasing quantum efficiencies of pigments. In addition, components with short lifetime ($\tau$ =0,2-1,2 ns for different detergents)appear in kinetics of pigment luminescence. It has been established,that mixed solubilization of different pigments (Chl and PChl) by one micelle leads to the nonradiative energy transfer between PChl and Chl . At Z=2÷10 ET critical distances $R_0$ varies from 3,9 to 2,5 nm for micelles of different detergents and migration efficiency $\Phi_{ET}$ changes from 0,6 to 0,1. Comparison of ET results with the known geometrical size and structure of micelles shows ,that chromophore distribution according to the Poisson statistics in micelles Chl and PChl molecules are preferentially embedded in the hydrophylic micellar layer. Under such conditions quenching of pigment triplet states by molecular oxygen has been observed.

Such systems may surve a good model for studying energetical interactions between photosynthetic pigments and evolution light-harvesting antenna.