STRUCTURAL TRANSITIONS IN LIPIDIC AQUEOUS DISPERSIONS

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Colloidal nanostructural aqueous dispersions (such as cubosomes, hexosomes, and micellar cubosomes) that display nanostructures closely related to those observed in biological membranes is receiving much attention in pharmaceutical applications [1].

In a recent study, our ultimate goal was as shown in Fig. 1 to experimentally demonstrate the direct transition from vesicles to cubosomes by heating the monoelaidin (ME, a rod-like monoglyceride containing a trans-monounsaturated acyl chain)-based dispersions [2]. In the present contribution, we focus also on describing (i) our recent investigations on combining synchrotron SAXS with a UV light source (in situ SAXS-UV irradiation) for determining the structure response of gold nanoparticles (NPs)-loaded vesicles [3], (ii) the combination of synchrotron SAXS with a stopped-flow apparatus for monitoring in situ the structural transitions induced by rapidly added calcium ions to negatively charged vesicles [4].