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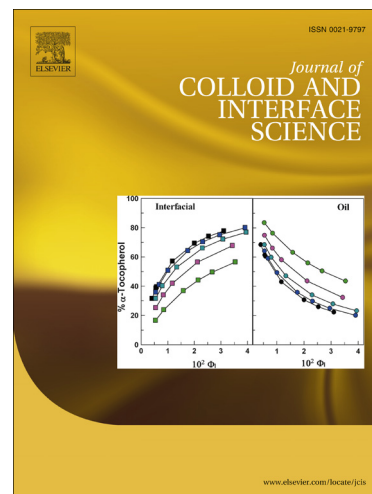
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Controlling nanostructure and lattice parameter of the inverse bicontinuous cubic phases in functionalised phytantriol dispersions.

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Abstract:

The preparation and phase behaviour of dispersed liquid crystalline particles comprised of phytantriol and various functionalised lipids are reported. These inverse bicontinuous cubic phase colloidal dispersions have been sterically stabilised with a triblock copolymer, Pluronic F127. The influence of added negatively charged amphiphiles oleic acid and sodium dodecylsulfate, the positively charged hexadecyltrimethylammonium bromide, and monoolein a neutral amphiphile, on phase behaviour and cubic phase structure was examined by synchrotron small angle X-ray scattering (SAXS). Functionality was also introduced through ligand specific lipids monosialoganglioside- G_{M1} and 1,2-distearoyl-*sn*-glycero-3-phosphoethanolamine-N-[biotinyl(polyethylene glycol)-2000]. SAXS measurements showed that all of the additives affected the long-range order of the inverse cubic phase observed through either phase behavior changes or alteration in lattice parameter.

Keywords: cubosomes; hexosomes; lyotropic liquid crystals; monoolein; phytantriol; inverse bicontinuous cubic phase.

Abbreviations:

OA – oleic acid

SDS – sodium dodecylsulfate

CTAB – hexadecyltrimethylammonium bromide

MO – monoolein

G_{M1} – monosialoganglioside- G_{M1} (G_{M1})

bDSPE – 1,2-distearoyl-*sn*-glycero-3-phosphoethanolamine-N-[biotinyl(polyethylene glycol)-2000]

SAXS - small angle X-ray scattering

DLS – dynamic light scattering

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