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EFFECTS OF NONIONIC SUGAR SURFACTANTS ON THE STRUCTURE OF MODEL MEMBRANES

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Sugar-based surfactants are of interest because they possess improved surface and performance properties, reduced environmental impact, and have potential pharmaceutical and biomedical applications. These surfactants are made from renewable resources, are easily biodegradable and increasingly used in washing agents, cosmetics, and drug carriers.

The influence of newly synthesized N-alkanoyl-N-methyllactitolamines (decanoyl [C_{10}MELA], lauoroyl [C_{12}MELA], miristoyl [C_{14}MELA]) as well as commonly used sugar-based surfactants, N-dodecyl-β-D-glucopyranoside [C12G1] and decanoyl-N-methyl glucamide [MEGA-10] on the thermotropic phase transition of DPPC, DPPC/Cholesterol, DPPC/DPPS and DMPC bilayers was studied by DSC method. Besides, some molecular properties of the surfactants studied were calculated numerically in the framework of molecular modeling methods. E.g. the parameters characterizing hydrophilic and hydrophobic interactions of the molecules and some VolSurf descriptors were computed and confronted with the measured experimental results.

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