

JOINT EVENT ON

5th International Conference on Bioplastics and 6th World Congress on Biopolymers

September 07-09, 2017 | Paris, France

Glycolipids: From synthesis and self-assembly studies to the design of original bio-based polymers

Henri Cramail

University of Bordeaux, France

The aim of this work was to study glycolipids and particularly trehalose esters for the synthesis of new bio-sourced polymers. Trehalose monoesters and diesters were synthesized by two esterification pathways of the primary alcohol of trehalose with different fatty acids. The first synthetic route is a protective group-free esterification using a peptide coupling agent and the second one is a lipase-catalyzed esterification. The self-assembly properties of the trehalose esters were first investigated. While trehalose monoesters showed surfactant properties in water, trehalose diesters appeared to be good gelators for organic solvents and vegetable oils. In a second stage, trehalose diesters were functionalized and polymerized with different strategies. Thus, polyurethanes and poly(hydroxyurethane)s were obtained by polycondensation whereas glyco-polyesters were synthesized by acyclic diene metathesis (ADMET) and thiol-ene polymerizations. The self-assembly properties of these polymers were investigated; in some cases, the latter were able to form some nanoparticles by solvent displacement method.

cramail@enscbp.fr