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Original biobased surfactant design from aldehydic platform molecules by the Morita-Baylis-Hillman strategy

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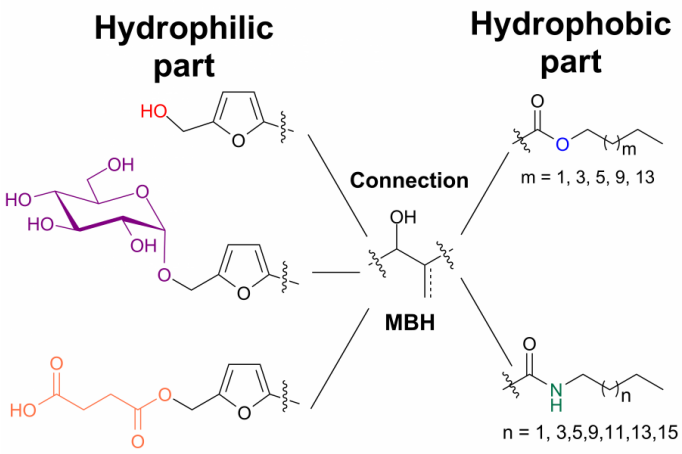
PURPOSE OF THE ABSTRACT

New surfactants with original design based on the Morita-Baylis-Hillman (MBH) reaction of aldehydic platform molecules were investigated.[1] The design of novel chemical architectures is an important contribution to the progress of biobased chemistry.[2] HMF, GMF (glucosyl-HMF) or SMF (succinyl-HMF) were coupled with hydrophobic activated alkenes, leading to a compounds with structural variations in the level of polarity, an hydroxyester or hydroxyamide link, the alkyl chain length and level of saturation. The physicochemical properties such as the Krafft point, critical micellar concentration (CMC), and hydrophilic lipophilic behavior determined with the PIT-slope method [3] have been explored. These surfactants cover a wide range of HLB values, and the formation of stable emulsions with two cosmetic oils of different polarity is encouraging for possible applications. This study widens the scope of amphiphilic structures designed form furans [4]. The strategy was then extended to other biobased aldehydic platform molecules.

FIGURES



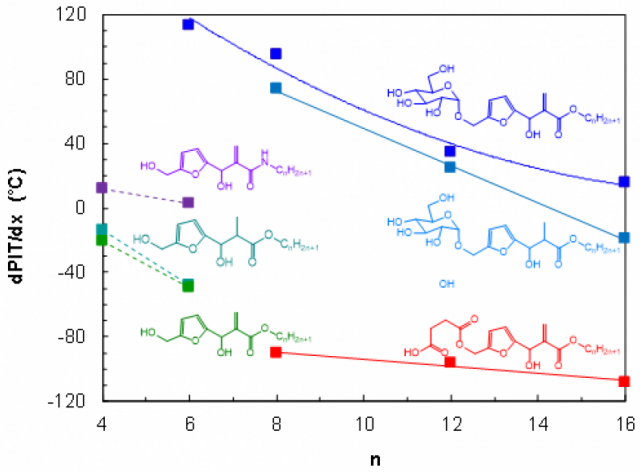


FIGURE 1

MBH strategy towards amphiphiles

Structural variations in novel MBH adducts from HMF, GMF and SMF

FIGURE 2

PIT slope variations

comparison of their amphiphilicity through the PIT slope method

KEYWORDS

HMF | surfactants | Baylis-Hillman | Pit slope

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