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New strategies towards fine chemicals from HMF and GMF

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PURPOSE OF THE ABSTRACT
In the frame of our projects dedicated to biobased chemistry, we have studied several reactions using HMF or its glucosylated analog GMF as buiding blocks towards novel fine chemicals.[1-5]
In this poster we summarize our recent work on the Morita-Baylis-Hillman (MBH) reaction, the Biginelli reaction, the Kabachnik-Fields reaction, all involving HMF or GMF.

For the MBH reaction, after a focus on biobased solvents, we have turned our attention to solventless conditions and also studied the multicomponent version of the aza-MBH reaction using GMF leading to novel ?-amino-esters bearing a carbohydrate residue.

Considering the high synthetic interest of multicomponent reactions which give straightforward access to complex molecules, we have also investigated the Biginelli reaction, which involves a condensation of an aldehyde, a C?H acidic carbonyl compound and an urea leading to dihydropyrimidinones, and shown that HMF sensitivity to acidic conditions can be overcome, reporting the first example of HMF in this process, with solvent-free reaction conditions. Preliminary results on novel biobased products arising from a dipolar cycloaddition of nitrones, and from the Kabachnik-Fields, will be also reported.

FIGURES

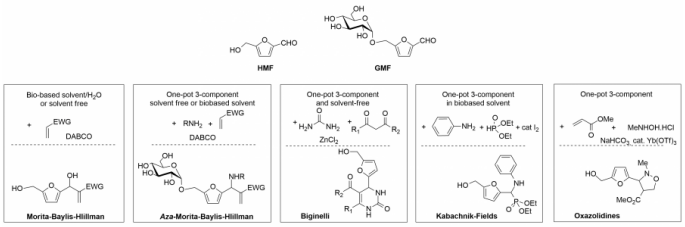

FIGURE 1

Figure 1

Various routes from HMF and GMF towards fine chemicals

FIGURE 2

KEYWORDS

HMF | GMF | multicomponent | biobased

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