ISGC 2022

N°881 / PC
TOPIC(s) : Biomass conversion / Clean reactions

Biobased Aldehydes from Fatty Epoxides through Thermal Cleavage of beta-Hydroxy Hydroperoxides

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PURPOSE OF THE ABSTRACT

Vegetable oils and their corresponding fatty acid derivatives are attractive renewable raw materials for the chemical industry.[1] Indeed, their competitive cost and wide availability make them adequate for numerous high-volume commercial applications.

In this context, we have previously reported an original approach for the valorization of oleochemical 1,2-diols to aldehydes through a dehydrogenation/retro-benzoin sequence.[2] We now report a more direct route to prepare these biobased aldehydes from fatty epoxides through the thermal cleavage of beta-hydroxy hydroperoxides.[3] The aldehydes obtained are excellent building-blocks for the preparation of bio-based surfactants and polymers. Moreover, the beta-hydroxy hydroperoxides[4] can also be used to prepare the corresponding fatty 1,2,4-trioxanes.[5]

FIGURES

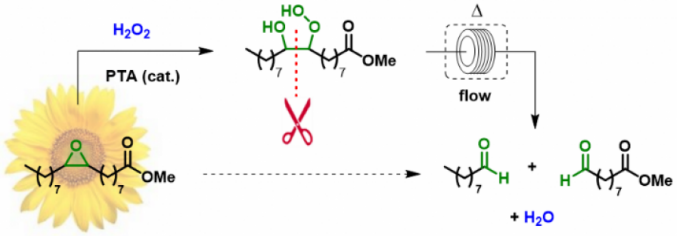

FIGURE 1

Figure 1

From fatty epoxides to aldehydes through thermal cleavage of beta-hydroxy hydroperoxides

FIGURE 2

KEYWORDS

Fatty Epoxides | Beta-hydroxy hydroperoxides | Thermal Cleavage | Aldehyes

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