

N°337 / OC / PC

TOPIC(s) : Biomass conversion / Homogenous, heterogenous and biocatalysis

Organocatalytic cleavage of fatty derivatives to esters

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PURPOSE OF THE ABSTRACT

Nowadays, the fossil energy depletion is pushing industries to look for renewable resources to replace petroleum-based products to reduce their environmental impact and also satisfy the consumer demands. One of these sustainable resources are vegetable oils which are mainly used for food applications and biodiesel. Nevertheless, they can be also used as building-blocks in pharmaceuticals, cosmetics, paints, surfactants or polymers. On the one hand, functionalization of the C=C bond allows the formation of organic functions that can lead to a variety of oil derivatives. On the other hand, these compounds can be cleaved to give shorter and valuable compounds

In our group, we have previously developed an original route to produce bio-aldehydes via the cleavage of alpha-hydroxyketones[1]. They were prepared from the corresponding fatty 1,2-diols via mono-oxidation or dehydrogenation[2]. During this process, fatty 1,2-diketones were obtained as by-products and the valorization of oil derivatives is crucial for the economic viability of the whole process. To do so, we have developed an organocatalytic cleavage method using a thiazolium precatalyst in mild conditions to form the corresponding fatty esters.

FIGURES

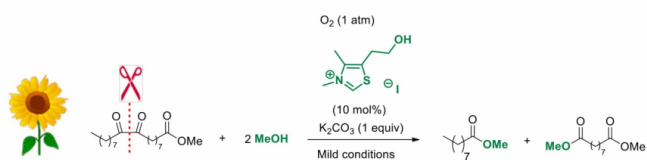


FIGURE 1

Cleavage Reaction

Figure 1. Organocatalytic cleavage of fatty 1,2 diketones to esters

FIGURE 2

KEYWORDS

vegetable oils | oxidative cleavage | organocatalyst | fatty esters

BIBLIOGRAPHY

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