

Procedure for obtaining new molecules usable as surfactants

DESCRIPTION OF THE INVENTION

This invention concerns a new procedure for obtaining organic molecules with surfactant properties entirely derived from biomass, and more precisely from 5-hydroxymethylfurfural (HMF) and fatty alcohols. HMF is a bifunctional compound (with a hydroxymethyl group and an aldehyde group), which can be obtained from lignocellulose. The process is highly selective and is carried out in just

two steps; one for the selective etherification of the hydroxymethyl group with a fatty alcohol and one for the selective oxidation of the aldehyde group, obtaining the desired high performance product. These compounds are biodegradable and have surfactant properties that are very similar to conventional surfactants derived from petroleum, such as alkylbenzene sulfonates.

APPLICATIONS

Surfactants are widely known and used in several fields. They are particularly known for their application as detergents, soaps and a variety of cosmetic products, among others.

Due to their versatility, the sectors where surfactants can be applied are extremely diverse, but focus mainly on the chemical industry.

TECHNICAL ADVANTAGES AND INDUSTRIAL BENEFITS

Obtaining this type of molecule from derivatives of HMF is well-known, but this procedure is different from previous versions described in current techniques. In this particular procedure, the process has been developed to include just two steps, both of which are highly selective for the desired product. Apart from the process taking just two steps, it enables the use of heterogeneous catalysts, which means that the process can be carried out in a single reactor, intensifying the process and minimizing resulting non-desired products. In addition, the use of a heterogeneous catalyst avoids the stages of separation and neutralization, and is also recyclable, thereby achieving high levels of productivity. Consequently, this process saves energy, as well as time and money.

Additionally, the compounds obtained, although they are known, have never been described in the context of their use as surfactants, which represents a novel contribution to the field.

STATE OF DEVELOPMENT

This technology is currently being verified and tested at the laboratory stage.

IP

To date, two requests for patents have been made to the OEPM (in December 2012 and March 2013).

DESIRED COOPERATION

The inventors are prepared to enter a collaborative agreement via:

- A licensing agreement for the product's use, manufacturing or commercialization
- An R+D Project to finalize the product's development or to apply it to other sectors.

Procedure for obtaining new molecules usable as surfactants

CONTACT

Technical contact

Avelino Corma Canós
Institute of Chemical Technology (UPV-CSIC)
acorma@itq.upv.es
tel. 963877007 Ext. 8500

Commercial contact

Elsa Domínguez Tortajada
Centro de Transferencia de Tecnología
<http://www.ctt.upv.es>
eldotor@ctt.upv.es
Tel. 963877409