

PA 15 - CO₂ Critical Point Dried Chitosan as a Catalyst: Influence of the Gelling Conditions on the Catalytic Properties

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Chitosan can be considered as a polyamine. The high amine functionality bore by the polysaccharide framework could display intrinsic catalytic activity in acid-base catalysed reactions provided that reactants easily access to these sites. In this work, we have investigated the influence of the gelling conditions of chitosan upon the morphology and catalytic activity of the CO₂ critical point dried monosized microspheres.

The gelation of chitosan was modified by ethanol addition in the alkaline solution, which resulted in increasing the specific surface area of the microspheres and the accessibility to the surface amines functions.

The catalytic activity of CO₂ point dried chitosan in the lauric acid acid addition to glycidol leading to monoglyceride formation reveals the major role played by the textural properties of the chitosan aerogel microspheres both in terms of catalytic performances and mechanical stability.

This emphasizes the potential of biopolymers in catalysis, even though their textural or chemical composition need to be adjusted depending on the aimed catalytic reaction.