Sodium alginate biopolymer: an efficient, recyclable green catalyst for the synthesis of chalcone derivatives under mild conditions

Manisha A. Bora [*1]

[1] *Department of Chemistry, BJS'S ASC College (Affiliated to S.P. Pune University), Wagholi, Pune, Maharashtra, India-412207*

Email: bmanishabora@gmail.com, Phone: + (91)9823955116

Keywords. biocompatibility; catalyst; recycling; synthesis; sodium alginate

Abstract.

One-pot chemical synthesis of highly pure chalcone under mild conditions using biocompatible Na-alginate biopolymer is reported. Several chalcone derivatives are prepared by magnetic stirring the equimolar quantities of the appropriate methyl ketone and aryl aldehyde with sodium alginate in ethanol under neutral conditions at room temperature. It is observed that in the presence of recyclable sodium alginate biocatalyst, highly pure chalcone with excellent yields in a very short time were obtained. The chalcone derivatives obtained are well characterized by UVDRS and FTIR techniques. The easily separable Na-alginate biocatalyst acts as a Bronsted acid and may be reused up to 5 cycles.

References.

[1]G. Grandhi, N. Viswanath, H. Cho, J. Han, S. Kim, J. Phys. Chem. Lett. 2020, 11, 7723

[2]A. Khan, K. Alamry, Chemistry Select, 2021, 6, 2, 154

[3]A. Mtibe, S. Ray, Macromolecular Rapid Communications 2021, 42, 15, 2100130