



Library Indian Institute of Science Education and Research Mohali



DSpace@IISERMohali / Thesis & Dissertation / Master of Science / MS-15

Please use this identifier to cite or link to this item: <http://hdl.handle.net/123456789/1443>

Title:	Micro Emulsion Based Gel as a Host for Enzymatic Separation and Catalysis
Authors:	Himanshu
Keywords:	Micro Emulsion Based Gel Enzymatic Catalysis
Issue Date:	May-2020
Publisher:	IISERM
Abstract:	The present study contains something phenomenal about Micro-emulsion based gels. This work involves formation of MBG (Micro emulsion Based Gel) via addition of water or aqueous sugar solutions in quiet high amount. The formation of thermally stiffening CTAB-micro-emulsion based gel (MBG), showing nano-confinement effect of carbohydrates in terms of micro-viscosity and hydrodynamic diameter of the reverse micelle. Upon heating, the mechanical strength of the gel increased up to 5 times. Also, advantage of this gel as efficient columnar bioreactor for entrapped enzymes (HRP) towards both hydrophilic and hydrophobic substrate in multiple runs has been elaborated. Finally, the superior catalytic ability of this MBG towards thermophilic α -glycosidase in multiple cycles at 60 °C has been demonstrated. Quiet interesting properties revealed during MBG formation with the help of sugars like glucose, sucrose and fructose. Here these sugars might be acting as gelling agents making a quiet H-bond network resulting into gel. MBG also get influence by surrounding temperature, which upon heating give astonishing results in the field of rheology. It also can be used as a biocatalyst for the synthesis of 2 substituted Benzoxazoles via Oxidative Cyclization.
URI:	http://hdl.handle.net/123456789/1443
Appears in Collections:	MS-15

Files in This Item:

File	Size	Format	
MS15082.pdf	1.94 MB	Adobe PDF	View/Open

Show full item record



Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.