



Library Indian Institute of Science Education and Research Mohali



DSpace@IISERMohali (/jspui/)
/ Publications of IISER Mohali (/jspui/handle/123456789/4)
/ Research Articles (/jspui/handle/123456789/9)

Please use this identifier to cite or link to this item: <http://hdl.handle.net/123456789/2383>

Title:	Scratching the Surface—How Decisive Are Microscopic Surface Structures on Growth and Performance of Electrochemically Active Bacteria?
Authors:	Patil, Sunil A. (/jspui/browse?type=author&value=Patil%2C+Sunil+A.)
Keywords:	Elucidates Surface Micrometer-scale Electrode
Issue Date:	2019
Publisher:	Frontiers in Energy Research
Citation:	Frontiers in Energy Research, 7.
Abstract:	This study elucidates the role of micrometer-scale electrode surface structures on the growth and the electrochemical performance of mixed culture electrochemically active biofilms (EAB). For this purpose, copper electrodes were machined to generate micro-scale surface structures (roughness and waviness) ranging from a few μm to over 100 μm , which were characterized using confocal laser scanning microscopy (CLSM). The structured electrodes were used to cultivate acetate based, mixed culture, anodic EAB in order to establish relationships between the surface properties and (i) the growth behavior and (ii) the stationary electrocatalytic properties of the resulting EAB. On short time scale, the initial growth phase is shown to be significantly influenced by the surface topology. The long term electrocatalytic biofilm performance, however, does not show any dependence on the surface structures and does thus not profit from the increased specific surface area and micro-scale surface area due to the increasing 3-dimensionality. The results of this study are of great importance for a more systematic development of tailored electrodes for microbial electrochemical technologies.
Description:	Only IISERM authors are available in the record.
URI:	https://www.frontiersin.org/articles/10.3389/fenrg.2019.00018/full (https://www.frontiersin.org/articles/10.3389/fenrg.2019.00018/full) http://hdl.handle.net/123456789/2383 (http://hdl.handle.net/123456789/2383)
Appears in Collections:	Research Articles (/jspui/handle/123456789/9)

Files in This Item:

File	Description	Size	Format	
Need to add pdf.odt (/jspui/bitstream/123456789/2383/1/Need%20to%20add%20pdf.odt)		8.63 kB	OpenDocument Text	View/Open (/jspui/bitstream/123456789/2383/1/Need%20to%20add%20pdf.odt)

Show full item record (/jspui/handle/123456789/2383?mode=full)

(/jspui/handle/123456789/2383/statistics)

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