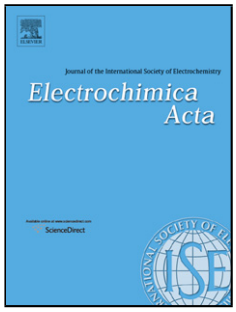


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# *In situ* acetate separation in microbial electrosynthesis from $CO_2$ using ion-exchange resin

*Suman Bajracharya*[1,2], *Bart van den Burg*[1,2], *Karolien Vanbroekhoven*[1], *Heleen De Wever*[1], *Cees J.N. Buisman*[2], *Deepak Pant*[1*] *and David P. B. T. B. Strik*[2]

[1]Separation & Conversion Technologies, Flemish Institute for Technological Research (VITO), Mol, Belgium

[2]Sub-Department of Environmental Technology, Wageningen University and Research, Wageningen, The Netherlands

**AUTHOR INFORMATION**

**Corresponding Author**

*Dr. Deepak Pant. Tel.: +3214336969; fax: +3214335599. E-mail address: deepak.pant@vito.be, pantonline@gmail.com

## GRAPHICAL ABSTRACT

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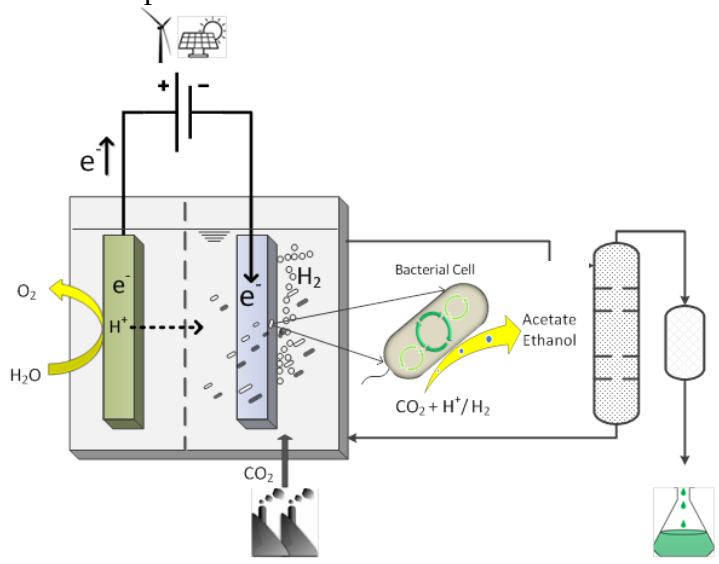


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## ABSTRACT

Bioelectrochemical reduction of carbon dioxide ($CO_2$) to multi-carbon organic compounds particularly acetate has been achieved in microbial electrosynthesis (MES) using the reducing equivalents produced at the electrically polarized cathode. MES based on $CO_2$ reduction produced 7−10 g $L^{-1}$ acetate at the cathode while operating the $CO_2$ fed reactor in batch mode using the homoacetogenic activity enriched mixed culture. An integration of acetate extraction from the catholyte is interesting, firstly to recover the product and secondly to reduce the probable product inhibition due to the accumulation of fatty acids. We investigated acetate production from $CO_2$ in