Centre for Bioprocess Engineering Research
University of Cape Town (UCT)
Cape Town, South Africa
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Title:	Improving Butanol Fermentation from Sucrose
Abstract:	During the production of sugar, a large surplus is exported at a low cost to neighbouring countries of South Africa. Further economic pressures place a strain on the current sugarcane industry in South Africa which calls for the value addition of its related products. *n*-**B**utanol is a potential platform chemical and biofuel which can be produced from the fermentation of simple sugars found in sugar cane (predominantly sucrose); however, the process suffers from low yields, low productivities and an energy intensive separation. The aim of this project is to improve the energy efficiency of the separation and thus process economics of the separation step by investigating various methods of *in-situ* recovery primarily through process simulations. The performance of the systems will be characterised and their impact on the yield and productivity will be addressed. The impact of the possible accumulation of unknown inhibitors and cell degeneration on the fermentation will also be assessed via continuous culture experiments.
Lead institution:	University of Cape Town (UCT)
Partner institutions:	Sugar Milling Research Institute (SMRI)
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Degree:	PhD (Eng)
Funded by:	CeBER, SMRI, NRF
Start date:	February 2015
End date:	December 2017
Feedstock:	Sucrose
Value chain products:	Acetone, *n*-butanol, ethanol, carbon-dioxide, hydrogen
Geographic source of the feedstock:	Eastern South Africa (KwaZulu-Natal, Eastern Cape and Mpumalanga)