NORTH-WEST UNIVERSITY
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NRF Research Chair in Biofuels
Potchefstroom, South Africa
http://www.nwu.ac.za/

Title:	Identification of lignocellulolytic enzymes from pathogenic fungi
Abstract:	Lignocellulosic biomass is the most abundant renewable carbon source available in nature for the production of second-generation biofuels (Devi and Kumar, 2012). However its resistance inhibits the accessibility of carbohydrates and conversion into commercially significant products (Dixon, 2013). Pathogenic fungi naturally deconstruct the cell walls of their hosts, therefore are capable of producing enzymes in the diversity and strength required for bioconversion (Shrestha, et al., 2015). These enzymes are stable to environmental conditions; are promising to hydrolyse biomass for biofuels and are safe, green and sustainable (Martinez-Pacheco, et al., 2009). In South Africa there are plans to include 400 million litres of biofuels in the national liquid fuel supply annually. The development of the biofuel industry has great potential to stimulate economic development (van Zyl and Prior, 2011). However, major technological innovation to overcome plant recalcitrance and production costs is required (Trivedi, et al., 2011). Therefore this study will have a significant contribution as it aims to identify the pathogenic species producing hydrolytic enzymes for the saccharification process of biomass to biofuels. This will facilitate to meet the future energy needs, reduce the use of fossil fuels and environmental pollution, and will not threaten food security (Trivedi, et al., 2011).
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Partner institutions:	Agricultural Research Council (ARC)
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Degree:	PhD Chemical Engineering
Funded by:	NRF and ARC
Start date:	January 2016
End date:	September 2018
Feedstock:	Lignocellulosic material of cereal crops
Value chain products:	Monomeric sugars, Hydrolytic enzymes, Highly productive strain, Biobutanol
Geographic source of the feedstock:	North West and Free State