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Optimization of bioprocesses for the production of valuable chemicals and innovative food products from sugarcane

Degree level: Full-time research-based master's degree in chemical engineering
Commencement: The successful candidate must assume postgraduate work in July 2024 or January 2025.
Host: Prof. Johann Görgens

An opportunity is available for postgraduate research at master's level focused on the optimization of bioprocesses for the production of valuable chemicals and innovative food products from sugarcane. A number of postgrad positions are available, covering key technical areas such as microbial utilisation of sugar mixtures for conversion to chemicals and proteins, chemical conversion of sugar mixtures to furan derivatives and the application of chromatography for purification of chemicals, oligosaccharices and proteins.

The global sugarcane industry is under substantial pressure to diversify its product range from the conventional sugar, ethanol and electricity regime, to include a broader range of green chemicals, biomaterials and innovative food components. Such a diversification strategy holds potential for new revenue streams that will create a sustainable future for this socially important agro-processing industry. Sugarcane will in the future be considered as more of an industrial crop rather than just a source of sugar, with multiproduct facilities, referred as "biorefineries," considered as a model for such expansion of the commercial footprint of the industry.

These postgraduate projects fall within the Research Chair in Sugarcane Biorefineries at the Department of Process Engineering, Stellenbosch University. The research chair has broad and in-depth collaborations within the local sugarcane industry, to ensure that the research approaches and outputs remain relevant to industrial practice. Successful postgraduate candidates will be exposed to a network of industry participants, which hold the promise of future career development. Successful candidates will be offered a minimum bursary of ZAR150 000 per year of study.

Requirements

- A bachelor's degree (BEng/BScEng or similar) in Chemical Engineering from an accredited tertiary institution. *Candidates with BTech, National Diploma, or advanced diploma qualifications will not be considered for these positions.*
- Applicants must have good academic record (preferably with a course aggregate of >65%).
- Previous experience in bioprocess development and/or biomass processing will be a definite advantage but is not required.
- Preference will be given to South African citizens and permanent residents who display academic excellence.

Application

Interested candidates must provide a cover letter, CV, degree certificate(s), complete academic transcript(s), master's thesis, research publications, and contact details of at least three academic references. If the master's thesis was written in a language other than English, an English abstract must be submitted. Incomplete applications will not be considered. Applications can be sent to jfgorgens@sun.ac.za. Candidates may consider their application unsuccessful if they do not receive any feedback within four weeks of applying. (Read more here about the programme and admission requirements.)

Stellenbosch University reserves the right not to fill the position.