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Durgaprasad Madras Rajaraman Iyer is a PhD candidate in Chemical Engineering at the Centre for Bioprocess Engineering Research at the University of Cape Town. He received his BE degree in Chemical Engineering from Visvesvaraya Technological University, India in 2004. He worked at Unilever Research India for 5 years developing novel formulations and technologies for the Laundry and Personal Wash categories. He later went on to graduate with an MPhil degree in Advanced Chemical Engineering at the University of Cambridge, United Kingdom in 2011. He is passionate about the conceptual design and development of novel renewable energy technologies.

Research Topic:

Power 'plants' – A bioenergy technology for distributed electricity generation

The plant microbial fuel cell (PMFC) technology is a novel concept that combines plant physiological mechanisms with microbial metabolism to generate electricity. It is an extension of the microbial fuel cell (MFC) in which microorganisms consume organic substrates to produce electrical power. This approach can potentially result in building resource-efficient, carbon-neutral, combustion-free distributed power generation structures. Such systems may be further integrated with other operations (e.g. wastewater treatment, agriculture) to achieve economic and environmental gains.

The focus of Durgaprasad's research is to assess the power generation potential of the PMFC in the South African context. The findings from the research will inform future experimental studies to maximize electrical power and technology robustness.