

# Three Minute 3MT Thesis

Rhodes University PhD candidate Siphokazi Msengana won the national Three Minute Thesis competition at the end of October, and was rewarded with a R15 000 cash prize. She eloquently explained the topic of her PhD thesis in under three minutes in a talk titled 'Natural alternatives to controlling the diamondback moth, a cabbage pest'.

The competition was first held in 2008 at Australia's University of Queensland, which then promoted it to other Australian and New Zealand universities and registered a trademark over the 3MT brand. Today, 3MT competitions are held in more than 900 universities and institutions in 85 countries around the world. The South African competition has been hosted by the University of the Free State (UFS) since 2016, but the 2020 and 2021 events were virtual ones due to the pandemic, with entrants judged on video submissions. Otherwise, the rules remained unchanged: entrants had to present their research in a way that could be understood by an audience with no background in the field, and could use no more than one PowerPoint slide, without any other resources or props.

Both master's and PhD students could take part in the heats organised by the participating universities – UFS, University of Johannesburg, University of South Africa, University of KwaZulu-Natal, North-West University, Wits University, Rhodes University, Durban University of Technology, and Central University of Technology – but only the first- and second-placed PhD students from each university were eligible for the 'final' in accordance with 3MT brand rules.



**Siphokazi Msengana won both the Rhodes University 3MT heat as well as the national competition.**

In her winning talk, Msengana explained that cabbage is widely grown by subsistence farmers in the Eastern Cape but is vulnerable to attack by the diamondback moth. Synthetic chemical insecticides

are not only expensive and potentially hazardous to the environment and human health, but also lose their effectiveness over time as the insect develops resistance.

"Perhaps a more sustainable option to consider would be insecticides that are derived from plants, which we term botanical insecticides," she said, "They can range from essential oils to plant extracts, or even dried plant parts that are crushed to a powder and then dispersed on the cabbage to control the insect."

Her doctoral research is therefore investigating the chemical properties of the weed *Tagetes minuta* and the indigenous shrub *Lippia javanica*, both of which have been shown in the past to repel insects or kill certain microorganisms. Msengana has undergraduate, honours and master's degrees in chemistry, all completed at Rhodes University, and she is employed as a scientific technician at the Eastern Cape government's agriculture and rural development department.

Nonkanyiso Pamella Shabalala from UNISA came second in the 3MT competition with her talk 'The exploration of environmental education interventions', and Zakithi Mkhize from University of KwaZulu-Natal came third for 'Solving HIV latency is the key to HIV cure'.



The caterpillars of the diamondback moth are destructive pests of cabbage and its relatives, such as cauliflower, kale and broccoli.