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South African Grape and Wine Research Institute
Suid-Afrikaanse Wingerd-en-Wyn
Navorsingsinstituut

31 July 2022

POSTGRADUATE OPPORTUNITY AVAILABLE AT THE SOUTH AFRICAN GRAPE AND WINE RESEARCH INSTITUTE (SAGWRI) FOR 2023

The following project is available for an MSc-level study from 2023, for a suitable student with a molecular biology/genetics/plant biotechnology background.

Project Title: Are grapevine defense response genes induced when plant defensin peptides are sprayed onto the plant?

Project description:

This project aims to evaluate whether small defensin peptides will activate a defense response in grapevine plants when the peptides are applied to the leaves of the plant (sprayed on). Defensin peptides are widely linked to the innate defense mechanisms of plants, particularly against fungi. We have been studying the protective effects of defensin peptides towards biotic and abiotic stresses and have confirmed in a proof-of-concept study that application of the peptides to the surface of the plants protected them against Botrytis, powdery mildew as well as an important insect pest (mealybugs). To understand whether the protective effects are only linked to direct inhibitory activity of the peptides towards the fungi and insect (through membrane disruption for example), or perhaps also through a priming mechanism to activate the host defense responses, the student will perform a gene expression analysis of samples that have already been generated. Peptides have been applied to grapevine plants and samples were harvested in a time course over 72 h to follow the expression of a number of grapevine defense response genes in the tissues of plants that received the tissues as well as those that did not. The gene expression analysis data will be instrumental to understand whether the peptides could potentially be used as a protective barrier on the surface of plants, and/or if it also activate a systemic response by priming the defense response of the plants.

Contact persons for the project:

Prof M.A. Vivier (mav@sun.ac.za)

Please send a CV, as well as a cover letter to Prof M.A. Vivier (mav@sun.ac.za) to indicate your interest in this opportunity.

General contacts for SAGWRI:

Prof MA Vivier: Interim Director of SAGWRI

mav@sun.ac.za

Ms Lorette de Villiers: Postgraduate Admin officer

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