

The South African Grape and Wine Research Institute at Stellenbosch University invites applications for fully funded postgraduate positions in dynamic and multicultural research groups starting in January 2024 or as soon as possible thereafter in the field of wine and soil microbiology.

Positions available

MSc position (Prof Benoit Divol's research group):

The project is entitled “phenotypic characterisation of a collection of *Lachancea* spp. yeast strains isolated from the broader South African wine environment”. After genetic fingerprinting, phenotypic characterisation will include fermentation performance and production of metabolites of industrial interest. The successful student will learn skills in microbiology, analytical chemistry and oenology.

A R120,000 bursary is available for this position if the student does not hold an external bursary (e.g. NRF).

PhD position (Prof Benoit Divol's research group):

This project is entitled “Assessing vitamin uptake and metabolism in wine yeasts”. Grape juice is converted to wine through yeast-driven alcoholic fermentation. During this biochemical process, nutrients are converted to alcohol, yeast biomass and a myriad of aroma compounds. The high sugar concentrations and the lack of oxygen create challenging living conditions for the yeasts, especially because other nutrients are in limited supply. Amongst those, B vitamins are essential growth factors for yeasts which can take them up from their habitat and/or synthesise them, depending on the yeasts' genetic background and the environmental conditions (viz. presence/absence of oxygen). Nevertheless, the conditions inducing uptake vs synthesis and the timing of uptake during fermentation are not clear for all vitamins and the further metabolism of the vitamins remains to be fully elucidated for the greater part. Moreover, fierce competition for these vitamins has been reported and its impact on individual yeast population dynamics within consortia requires further research. This project aims to investigate vitamins holistically, their uptake and synthesis in various wine yeasts and the possible exchange of vitamins within yeast ecosystems during fermentation. The project will be performed in collaboration with the University of Montpellier, France and the selected PhD student will be given the opportunity to register at both universities (Stellenbosch and Montpellier) for a joint PhD degree.

A R150,000 bursary is available for this position if the student does not hold an external bursary (e.g. NRF).

MSc position (Prof Evodia Setati's research group):

The project is entitled “Evaluation of the grapevine rhizosphere microbiome's response to water stress”. High throughput sequencing and bioinformatic analysis of the fungal and bacterial communities

associated with different grapevine rootstock-scion combinations will be conducted on DNA extracted from root-associated soil before and after differential irrigation of the vines. Core skills in microbial ecology, molecular biology and bioinformatics will be acquired on completion of the project.

A R120,000 bursary is available for this position if the student does not hold an external bursary (e.g. NRF).

Minimum requirements

- Applicants must be South African or permanent residents in South Africa
- A BScHons degree (for MSc positions) or an MSc degree (for PhD position) in Microbiology or related field
- No prior knowledge on wine is required

Applications must comprise the following documents:

- A cover letter stating why you are suitable for and interested in one of these positions
- Up-to-date *curriculum vitae*
- Contact details of at least one academic referee
- Up-to-date academic record

Applications must be sent electronically to Prof Benoit Divol (divol@sun.ac.za) or Prof Evodia Setati (setati@sun.ac.za) by 31 December 2023.