

Plant-fungi relationships in water sensitive urban design.

The project

Water sensitive urban design (WSUD) utilizes alternative water sources for various end uses (e.g. using treated stormwater runoff for irrigation). One common WSUD approach is the raingarden (a.k.a. stormwater biofilter), which is a treatment system that captures and treats stormwater runoff in a vegetated filter media bed (see figure on right). Previous research has demonstrated the importance of vegetation in these systems in removing nutrients, particularly nitrogen, but little is known about how plant-fungal relationships may affect removal.

Mycorrhizae are a type of fungi that can develop a symbiotic relationship with plants and have been found in Australian raingardens. These fungi could improve plant health in raingardens, particularly during the dry season. This research will utilize column experiments in the Living Lab for Water Technologies to explore plant-fungi relationships and the role of mycorrhizae in pollutant removal in raingardens.

The opportunity

One scholarship covering tuition fees and providing a tax-free stipend (approximately \$28,000/year) for 3 years is potentially available for either a domestic or international student. There is potential for the successful applicant to earn up to \$3,000 (not tax-free) per annum through assisting in undergraduate teaching. Students are given financial support to attend an international conference during their PhD.

Selection criteria

- MSc, BSc, or equivalent degree AND research experience of at least 6 months.
- Coursework related to plant science, water quality, and ecology preferred.
- Excellent academic record (e.g., >75 WAM or 3.2 GPA).
- Experience (preferred) and desire (required) to publish in internationally recognised journals.
- Statistical analysis and lab experience highly desirable.

Applications

Applicants should provide the following documents when they express their interest in writing to Dr Brandon Winfrey (brandon.winfrey@monash.edu):

- Cover letter, no more than 2 pages, outlining your interest and experience in this research topic and why you are applying for this PhD program, as well as evidence of meeting the eligibility criteria for PhD candidature at Monash University (<https://www.monash.edu/graduate-research/future-students/apply>)
- Academic transcript(s)
- CV, including academic record, details of journal publications, employment history, and names of two academic referees

Applicants will be required to apply for a scholarship through Monash University.