

## Fungal Biomass Protein, a Valuable Bioproduct Derived from a Treatment Process for Winery Waste Streams

**Supervisors:** Assoc Prof Bo Jin

**Nature of work:** Experiment

**Area:** Chemical Engineering, Biotechnology

**Funding:** *Via* the various University scholarship schemes (see separate information for these).

**Project description:** The wine industry produces large volumes of waste streams, which pose increasing disposal and pollution problems. The treatment of this wastewater requires many successive and costly steps. In Australia, most of the existing winery waste treatment processes cause large losses of nutrient resources. These waste streams are rich in organic compounds, mainly carbohydrate-rich organics such as sugars and cellulose, which are biodegradable and naturally rich in nutrients, making them ideal substrates for biomass protein production. Since the sugar and cellulose in the winery wastewater are the major contributors to the COD, using the waste streams as substrates for the production of microbial biomass protein will reduce its pollution potential, while producing value added products.

This research aims to develop a biotechnological treatment process integrated with fungal biomass production from the winery waste streams. The outcomes of this project are i) the production of fungal biomass for use as a protein-rich animal feed; ii) the treatment of waste water to allow reuse for farm irrigation; and iii) reduced pollution of watercourses. The research will develop a technology that is environmentally friendly and adds value to the Australian winery industry via pollution reduction and fungal biomass protein production.



More details on this project or other related advanced research topics can be referred to the website of [www.adelaide.edu.au/bio-nano-tech](http://www.adelaide.edu.au/bio-nano-tech) or visit my office. Our current research interests include water, energy, materials, biotechnology, tissue engineering, and others.