

## Responses of *Vitis Vinifera L.* Cell Suspension Culture to Shear Stress in a Miniaturized Bioreactor

**Supervisor:** Dr Hu Zhang

**Nature of work:** Experiments

**Area:** Chemical Engineering, Biotechnology

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

**Brief description:** Plant cell culture is an alternative to produce target materials for functional food ingredients and pharmaceuticals. Plant cells tend to form aggregates in the cell culture process. The aggregates complicate the mass / heat transfer and become sensitive to shear stress inside a bioreactor. The aim of this project is to determine the impact of shear stress on the primary and secondary metabolites in an in-house designed miniaturized bioreactor. This novel bioreactor provides

- Controllable shear stress
- Sufficient nutrient (including oxygen) supply
- Scalable process information

*Vitis Vinifera L.* cells producing anthocyanin are chosen to evaluate the bioreactor as well as investigate the shear stress impact on the production of anthocyanin.

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.