

## Development of molecular markers for resistance to blackleg disease (*Leptosphaeria maculans*) in canola

Sanjay Singh<sup>1</sup>, Morley Muralitharan<sup>1</sup>, Gururaj Kadkol<sup>2</sup>, David Cahill<sup>1</sup> and Eddie Pang<sup>3</sup>

<sup>1</sup>School of Biological and Chemical Sciences, Deakin University, Geelong VIC 3217, Australia

<sup>2</sup>Nugrain Pty. Ltd., Wimmera Business Centre, Horsham, VIC 3400, Australia

<sup>3</sup>Department of Biotechnology and Environmental Biology, RMIT University, Bundoora VIC 3083, Australia

Canola (*Brassica napus*) is an important crop in Australia and it contributes annually approximately \$A450 million to the Australian economy. Whilst many of the current Australian varieties possess very high levels of resistance to blackleg disease, the development of appropriate molecular markers will assist with the breeding and selection of varieties with better resistance. Marker assisted selection (MAS) could replace traditional phenotypic selection, reducing generation time and improving efficiency. Currently, a program is being set up in our laboratory to develop molecular markers for resistance to *Leptosphaeria maculans* using data from disease nurseries located in southwest Victoria which provide very high levels of inoculum pressure. We have optimised DNA isolation conditions for canola and we are planning to apply RAPD and Microsatellite techniques to tag genetic variation in several crosses of canola. Segregating material from these crosses would be used as reference populations. These populations would be characterised for blackleg resistance and cosegregation with DNA polymorphisms using RAPD and microsatellites. This research is expected to contribute significantly to the understanding of horizontal and vertical disease resistance and assist development of varieties with increased resistance to blackleg disease. Initial results from RAPD and microsatellite molecular marker work will be presented at the conference.