

Australian researchers uncover Sclerotinia stem rot facts to improve resistance in canola

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Australian researchers have discovered three genes associated with resistance to sclerotinia stem rot, marking a major step towards developing improved disease-resistant canola varieties for growers.

The genes have links to sclerotinia stem rot susceptibility and resistance. Sclerotinia stem rot is a fungal disease which can significantly reduce the productivity of a grower's canola crop.

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Researchers from the Centre for Crop and Disease Management (CCDM), in collaboration with the New South Wales Department of Primary Industries (NSW DPI) and Agriculture and Agrifood Canada (AAFC) identified the genes. CCDM researcher and lead author Dr Toby Newman says the finding represents a major step in the development of tools that canola breeders can use to produce varieties with much improved resistance to sclerotinia stem rot.

Dr Newman says their research used the model species *Arabidopsis thaliana*, which is in the same family of plants (*Brassicaceae*) as canola (*Brassica napus*). "It's tricky to breed resistance to sclerotinia stem rot in canola because a broad range of genes contribute to susceptibility and resistance. We found two genes that make *Arabidopsis* more susceptible to the disease and one gene which increases resistance to it. Identifying these genes means we can infer that the corresponding genes in canola, are likely to react similarly, working to make the plant more susceptible or resistant, but this resistance is yet to be proven in this crop. Breeders can soon use this information to improve genomic selection accuracy to select for more resistant lines in their breeding program."