

Scientific Programme 3: Agronomy and Management

Epidemiology and recent advances in Sclerotinia rot management in *Brassica juncea*

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Sclerotinia sclerotiorum (Lib.) de Bary, the causal organism of stem rot of *Brassica* and over 500 host plants is distributed worldwide. Sclerotinia rot is menace to cultivation of oilseed *Brassica* crops in the world. Infection occurs on leaves, stems and pods at different developmental stages, causing seed yield losses of up to 80%, as well as significant reductions in oil content and quality. The epidemiology of Sclerotinia rot (SR) of Indian mustard (*Brassica juncea* L.) was investigated, and study clearly indicates that favourable environmental conditions must coincide with sufficient inoculum before Sclerotinia rot will be a problem in Indian mustard. Soil moisture levels, BSSH and temperature appear to be the best factors to use in a predictive model. Relationship among minimum temperature, relative humidity, and sun shine hours as well as soil moisture required for carpogenic germination, which initiated in 52 standard week and continued during 1 to 3 standard weeks. Monitoring of disease should start by growers when petals start to fall on the soil. These results indicated the need to develop disease prediction system for improving the timing of application and efficacy of control measures, to minimize the threat of SR.

Management is difficult, inconsistent and uneconomical due to the presence of wide host range and long-term survival of the resting sclerotia. Since no single method can effectively control *S. sclerotiorum*, the best approach to control the pathogen is by the integration of various eco-friendly measures. Cultural practices including wider row and plant spacing or lower plant populations along with irrigation management reduce the microclimate favorable for disease development. Different fungal and bacterial antagonist were also found effective in Sclerotinia management however foliar spray of carbendazim at full bloom stage provided significant disease reduction and highest seed yield of Indian mustard.

Partial resistance has also been identified in some *B. napus* and, to a lesser extent, in *B. juncea* genotypes from India. In recent a significant partially resistant genotypes have been identified in *B. juncea*. In addition to identifying high level host resistance to SSR, breeding populations of similar levels of resistance but narrow variation in the resistance range have also been identified. Such populations not only consistently display the level of resistance expected but also reflect genetic diversity of resistance sources needed to successfully develop new more-resistant cultivars.