

Epidemiology of Sclerotinia Rot in Brassica sp.

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DESCRIPTION

Sclerotinia-rot (caused by Sclerotinia sclerotiorum) is the most serious and causes maximum damage at various stages of crop development. Sclerotinia-rot is presently increasing in its extent and severity in North India, primarily because of changing soil environment and irrigation practices, and disease epidemics are now of common occurrence. Sclerotinia-rot of oilseed Brassica is among the most economically important diseases that threatens oilseed Brassica production in countries worldwide. S. sclerotiorum has been reported to colonize over 408 plant species of diverse phylogenetic background including 278 genera and 75 families dicotyledonous and a number of of significant monocotyledonous plants. While it is distributed worldwide, it is more common and severe in temperate and subtropical regions possessing cool and wet seasons. Sclerotinia-rot of Brassica spp. also referred as white-rot, stem rot, stem blights, stem break, cottony rot and can even appear as a watery soft rot. While there has been extensive research carried out for the management of this disease, available methods have not provided effective or reliable control for affected commercial crops. An important constraint in the development of practices to manage this disease has been the paucity of knowledge on key aspects of the etiology, biology and epidemiology of this disease. The presence of oilseed Brassica senescing flower tissues, such as petals, is a prerequisite for infection by ascospores produced from carpogenically germinated apothecia because ascospores of S. sclerotiorum require a period of saprophytic growth before being able to infect healthy plant tissues. Additional nutrient sources for establishing infections by this pathogen can be provided by senescing leaves and petioles. In addition, the presence of senescing leaves in canopy could extend the period of susceptibility of the crop. The productions of primary inoculum to coincide with the flowering stage and the stage when senescing leaves are present together constitute an important adaptation of S. sclerotiorum to crop phenology. Further, preharvest epidemics can also occur in the field as a consequence of systemic infection following myceliogenic germination of S. sclerotiorum. The disease "Sclerotinia stem rot" is caused by the fungus S. sclerotiorum, which can occur on many

broadleaf crop and weed species, particularly *Brassica*. Cereal crops and grass weeds do not host the disease. The fungus can be soil-borne or carried with seed. In India, The disease is highly sporadic requiring specific environmental conditions to develop and disease incidence can vary greatly from year to year, but is most damaging with prolonged humid or wet conditions during flowering. The sporadic nature and inconsistent relationship between the level of stem infection and yield loss make it difficult to reliably make foliar fungicides application decision. Yield loss is often difficult to predict but it can be up to 24%-26% under Indian conditions, depending on the presence of plants infected and the crop growth stage when infection occurs. Amongst the various pathogens responsible for these diseases, *Sclerotinia sclerotiorum* cause severe rot of root and stem of Indian mustard.

CONCLUSION

Losses caused by this disease of rapeseed varied from 11 to 14 per cent in Saskatchewan and 28 per cent in Alberta, Canada. In 1986, white-rot of crucifer's disease was found to be widespread and severe on yellow sarson and toria in India. The disease has made its sporadic appearance in the recent past in some parts of Northern India, where rapeseed-mustard are cultivated. The pathogen causes elongated water soaked lesions which are later on covered by a cottony mycelial growth of the fungus. Finally, the stem is completely girdled, with the result plant dries up. Sometimes the infection is restricted to smaller patches where stunting of the plant and premature ripening is a common phenomenon. Numerous grayish white to black spherical sclerotia appear either on the surface or in the pith of the affected stem. S. sclerotiorum, being an omniphagous and soil borne, several micro and macroclimate and nature of host play decisive role in the severity of disease. Therefore, it has to interact with different other soil micro-organisms including soil borne pathogens. Under such circumstances, the damage may be more. Being a soil inhabitant, S. sclerotiorum is bound to be influenced by various factors like soil texture, moisture, temperature and nutritional status. Several chemicals have been tried to control disease caused by S. sclerotiorum haphazardly.

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