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SCLEROTINIA STEM ROT IN MUSTARD

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Indian mustard (*Brassica juncea* {(L.) Czernj. Cosson}) is a member of rapeseed–mustard group of crop and also known as Rai or Laha belong to Brassicaceae. Rapeseed- Mustard group of crops are important oil seed crops of the world. Indian, rapeseed-mustard have occupied production area 63.40 lakh hectares with an average yield of 1233.40 kg/ha and the total production of 78.20 lakh tones. India is contributing to world in area 28.3 lakh hectares and production 19.8 per cent (Anon, 2014a). Madhya Pradesh contributed in rapeseed – mustard crops production area about 08.00 lakh hectares with production and productivity of 11.40 lakh tones and 1425 kg/ ha respectively during 2014, (Anon, 2014b). It is world's third most important sources of vegetable edible oil contained 38-42 percent in different varieties. Madhya Pradesh is an important rapeseed mustard producing state of India contributing more than 10 per cent of the total production in the country. Rapeseed–mustard group of crops play a vital role in Indian economy. The stem rot of Indian mustard incited by *Sclerotinia sclerotiorum* (Lib.) De Bary is a new emerging drastic disease. The crops of this group are vulnerable to Sclerotinia stem rot caused by *Sclerotinia sclerotiorum* has become a major biotic threat in several parts of the country. It has established a key position, limiting the production of the crops particularly *Brassica juncea* in several pockets of the districts. The first symptom of Sclerotinia stem rot was noticed as water soaked patches on leaves and stem of the plant at flowering stage. These spots gradually turned into whitish brown enlarged patches followed by girdling of stem, drooping leaves and premature plant dry. The sclerotial development was commonly observed inside and out dried lesion. The incidence of Sclerotinia stem rot in 24 blocks of the five surveyed districts viz., Bhind, Morena, Gwalior, Datia and Sheopur were in the range of 1.17 (Karahal block of Sheopur) to 20.84 (Gohad block of Bhind) percent. The estimated yield losses in the surveyed districts were in the range of 4.287% (Bhind) to 0.771% (Sheopur). Potato dextrose agar medium was found best as it was significantly superior over the remaining nine media in respect of growth and sclerotial development of *S. sclerotiorum*. Ten inoculation techniques were evaluated in which Paraffin wax film was found best and significantly superior over the other techniques and control. The isolates of *Sclerotinia sclerotiorum* collected from Morena, Bhind, Gwalior, Datia and Sheopur showed difference in growth, number of sclerotia, size of sclerotia weight of sclerotia and weight of mycelium whereas they did not differ in colour of mycelium and sclerotia and shape of sclerotia. The isolate-1(Bhind) referenced value (100%) differed from other four isolates assessed by RAPD performed. Sclerotinia stem rot infection is negatively and significantly influenced by maximum temperature ($r = 0.697^*$) and sunshine hrs ($r = 0.855^{**}$), while, the maximum relative ($r = 0.883^{**}$) and minimum relative ($r = 0.871^{**}$)



showed highly significant and positive correlation with the *Sclerotinia sclerotiorum* infection. Further, regression equation between maximum relative humidity disease development $Y = -40.518 + 0.475 X_3$ similar to infection. The disease was also negatively influenced by maximum and positively influenced by relative humidity. The pressure of Sclerotinia stem rot was so high that none of the tested 47 genotypes put secure their place in the categories of highly resistance and resistance. However, only one entry (JD-6) showed the moderately resistance and rest most of entries were categorized of highly susceptible and susceptible. It is concluded that none of the entries remained absolutely free from Sclerotinia stem rot infection but the least infection was recorded in JD-6 followed Shraddha, Maya, JTC-1, RMWR-09-6, B-85, SEJ-2, RMM-09-1, while, Rohini followed by Pusa Bold, JM-3, Varuna, JMWR-08-1, NRCBH-506 and JMM-927 were fallen in highly susceptible category. Among tested 20 botanicals, *Allium sativum* at concentration of 15% was found most effective

in respect to growth inhibition and sclerotial development of *S. sclerotiorum*. Amritjal at concentration of 20 and 25 % absolutely inhibited the growth of *S. sclerotiorum*. Among the tested biological agents, *T. harzianum* showed maximum inhibition against the test pathogen. The fungicides *viz.*, carbendazim, thiophnate methyl and propiconazole completely inhibited the growth and sclerotial development of *S. sclerotiorum*. The efficacy of laboratory effective treatments was again evaluated in the field condition which carbendazim was found most effective followed by thiophnate methyl and propiconazole. With the light of above findings SSR disease may be managed by using integrated plan.

Note:- * (Significant), ** (Highly significant), SSR (Sclerotinia stem rot)

References

Anon. (2014 a). <http://faostat3.fao.org/faostat-gateway/go/to/download/Q/QC/E>

Anon.(2014b).

http://www.google.co.in/url?sa=t&ret=j&q=&esrc=s&frm=1&source=web&cd=1&ved=0CBsQFjAA&url=http%3A%2F%2Fagricoop.nic.in%2Fimagedefault%2FRabi2013%2FMadhya%2520Pradesh%2FMP.ppt&ei=j_ThU_LfLI6KuATXjILoBw&usg=AFQjCNFHWD48A1cuXus1PLP0JAInAOvohQ

Ghasolia, R.P.; Shivpuri, A. and Bhargava, A.K. 2004. *Sclerotinia* rot of Indian mustard (*Brassica juncea*) in Rajasthan. *Indian Phytopath.* **57**:76-79.

Mehta, N.; Hieu, N.T. and Sangwan, M.S. 2010. Efficacy of botanicals against *Sclerotinia sclerotiorum* inciting white stem rot of rapeseed-mustard. *Pl. Dis. Res.* **26**(1): 82-86