

Research Article

Sclerotinia Rot of Ridge Gourd and Pointed Gourd in Lateritic Zone of West Bengal, India

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Abstract: Sclerotinia rot caused by *Sclerotinia sclerotiorum* (Lib.) de Bary was recorded on ridge gourd (*Luffa acutangula* (L.) Roxb.) and pointed gourd (*Trichosanthes dioica* Roxb.) in Birbhum district of West Bengal. The pathogen infects internode and node of the vine stem causing wilting and drying of the vine above the point of infection. Prominent mycelial growth was found on the infected fruits and the fruits underwent rotting. On the rotted fruits abundant small to large, elliptical, circular and irregular sclerotia were formed. This disease is new record for *Luffa acutangula* and *Trichosanthes dioica* in West Bengal and *T. dioica* is new addition to the host range of *Sclerotinia sclerotiorum*. The isolate of this pathogen did not have host specificity.

Keywords: Sclerotinia rot; *Luffa acutangula*; *Trichosanthes dioica*; *Sclerotinia sclerotiorum*; host range

INTRODUCTION

Ridge gourd (*Luffa acutangula* (L.) Roxb.) and pointed gourd (*Trichosanthes dioica* Roxb.) are the important cucurbitaceous vegetable crops in West Bengal, India [1]. Though these crops are considered to be summer and rainy season crops, now-a-days many farmers preferred to grow early for getting high market price. In the cooler month, Downy mildew [*Pseudoperonospora cubensis* (Berkeley & M. A. Curtis) Rostovzev], causes severe damage of these crops [2]. Present study includes incidence of new disease in these crops in changed cultivation practice of the farmers in Birbhum district, the lateritic zone of West Bengal

METHODOLOGY

During routine survey Sclerotinia rot of ridge gourd and pointed gourd was recorded in the farmers' fields of Birbhum district, West Bengal in the month of January, 2014. In both the cases the disease was not severe as the farmers were spraying fungicides regularly. Detail symptoms of the disease were noted, in field condition. Infected vines and fruits were collected from the infested field and incubated in the laboratory for further development of symptom.

The pathogen was isolated in chloramphenicol amended potato dextrose agar (PDA) medium in petridish by transferring white mycelium produced on diseased plant. After the fungus produced sclerotia on medium, the culture was transferred to new PDA medium for maintenance and future work.

For pathogenicity test, a mycelial strip from four days old culture on PDA was placed on the internode of the vine. The mycelial strip was wrapped with thin layer of moist cotton. Water was spread over the vine branch and the inoculated vine-branch was covered with polythene packet to maintain moist condition for three days. After three days, polythene cover was removed. The work was done in the month of January. Five to seven days after inoculation water-soaked lesion appeared on the inoculated area. In next 3-4 days, portion of the vine above the point of inoculation wilted and dried.

RESULT AND DISCUSSION

The first noticeable symptom of the disease in field condition was drying of a few vines. Drooping of tips of some vines was also noticed. On careful observation fade green lesions were found on the internode of those vines. Such vines were brought to the laboratory and kept in moist condition for three days; white mycelial growth came up and spread over the vine (Fig. 1 & 5). In pointed gourd, infection spread to the leaf also (Fig. 1). In field, prominent white mycelial growth was seen on infected ridge gourd fruits (Fig. 6). Infected pointed gourd fruit became reddish brown and thin mycelia growth cover the infected area (Fig. 2). When infected fruits were kept in moist condition prominent white mycelial growth covered both the fruits and the fruits underwent complete rotting (Fig. 3 & 7). On the rotted fruits abundant small to large, elliptical, circular and irregular sclerotia were formed (Fig. 4 & 8). Pointed gourd is commonly affected by Fruit

and vine rot disease caused by *Phytophthora melonis* Katsura [3-4] and ridge gourd by Fruit rot caused by *Pythium aphanidermatum* (Edson) Fitzp. [5]. Both these diseases appeared in warm/hot, humid/rainy conditions only.

The pathogen produced white mycelium with hyaline, branched and septate hyphae. Black sclerotia near spherical to irregular in shape generally formed within 4 days of incubation at 25°C. The sclerotia were silvery white in the initial stages of development but turned dark with increasing age of the culture (Fig. 9). The pathogen was identified as *Sclerotinia sclerotiorum* (Lib.) de Bary as the cultural characteristics were in conformity with the description of the large sclerotial forms of the fungus [6].

Ridge gourd has been reported as host of *Sclerotinia sclerotiorum* from Arunachal Pradesh Bag [7]; Hansda *et al.* [8] and Mondal *et al.* [9] recorded *Sclerotinia* rot on a number of crops from West Bengal whereas *Sclerotinia* rot of ridge gourd and pointed gourd was not reported earlier. Incidence of the disease is reported first time from India on *Trichosanthes dioica*.

On artificial inoculation in laboratory condition the isolates of *Sclerotinia sclerotiorum* from ridge gourd and pointed gourd infected french bean (*Phaseolus vulgaris* L.), dolichos bean (*Dolichos lablab* L.), pea (*Pisum sativum* L.), bottle gourd (*Lagenaria siceraria* (Molina) Standl.), cauliflower (*Brassica oleracea* L. var. *botrytis*) and cabbage (*Brassica oleracea* L. var. *capitata*) indicating the pathogen do not have host specificity. Kumar *et al.* [10] got similar result in a study on host range of *Sclerotinia sclerotiorum* of broccoli (*Brassica oleracea* L. var. *italica*) [11]. As the pathogen, *Sclerotinia sclerotiorum* has wide host range and do not have host specificity, care should be taken to remove and destroy diseased plant parts from field, even the disease is not severe, to reduce survival potential of this pathogen.



Figure 1: Infected pointed gourd vine with white mycelial growth on stem and leaf (after 3 days incubation).



Figure 2: Infected pointed gourd fruit collected from farmer's field.



Figure 3: Infected pointed gourd fruit after incubation in the laboratory.



Figure 4: Sclerotia produced on rotted pointed gourd fruit.



Figure 5: Infected ridge gourd vine with white mycelial growth on stem and leaf (after 3 days incubation).



Figure 6: Infected ridge gourd fruit collected from farmer's field



Figure 7: Infected ridge gourd fruit after incubation in the laboratory.



Figure 8: Sclerotia produced on rotted ridge gourd fruit.

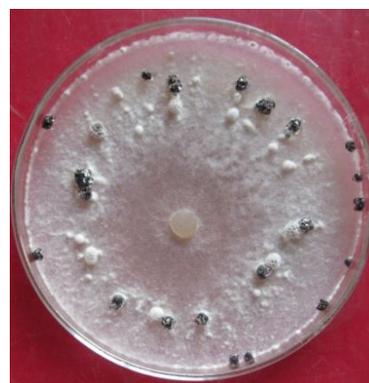


Figure 9: Growth of the pathogen, *Sclerotinia sclerotiorum* on PDA medium.

CONCLUSION

Sclerotinia sclerotiorum infected ridge gourd (*Luffa acutangula*) and pointed gourd (*Trichosanthes dioica*). The pathogen produced sclerotia of different shapes on the rotted fruits. The pathogen did not have host specificity.

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