

Post Harvest Disease of Vegetables Caused by *Sclerotinia sclerotiorum* in West Bengal

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Abstract: Sclerotinia rot of french bean (*Phaseolus vulgaris* L.), dolichos bean (*Dolichos lablab* L.) and pea (*Pisum sativum* L.) caused by *Sclerotinia sclerotiorum* (Lib.) de Bary was recorded from Kalyani (Nadia) and Sriniketan (Birbhum) markets in West Bengal, India. Primarily water soaked lesion and white mycelial growth observed on the fruits. In humid condition appearance of profuse white cottony mycelial growth on infected fruits along with formation of large black sclerotia was observed. Infection could be initiated in field and spread to the healthy fruits of the vegetables during transit. All the isolates of *S. sclerotiorum* produced disease on artificial inoculation.

Keywords: Post harvest disease, *Sclerotinia sclerotiorum*, *Phaseolus vulgaris*, *Dolichos lablab*, *Pisum sativum*

INTRODUCTION

Sclerotinia sclerotiorum (Lib.) de Bary is a soil borne plant pathogen, commonly known as white mould, having world-wide distribution with wide host range, and has the ability to survive in soil for long periods in the form of sclerotia [5, 6, 7]. The pathogen attacks nearly all kinds of succulent plants including flowers, shrubs, weeds and vegetables [1, 8]. The disease caused by this pathogen has been reported from different parts of India. In recent years Sclerotinia rot has been reported on 30 plants from West Bengal [4]. Present investigation was made to record the incidence of post harvest disease caused by *S. sclerotiorum* of some vegetables in West Bengal.

MATERIALS AND METHODS

Survey was conducted during January-February, 2015 and 2016 at Kalyani 2 no. market (Nadia, West Bengal) and Sriniketan Market (Birbhum, West Bengal) to know the post harvest diseases situation of vegetables. Different kinds of rotted vegetables were collected and brought to the laboratory for detail investigation. The infected vegetables were incubated in polypropylene packet with water soaked cotton and the mouth of the packet tied air tightly after blowing air into the packet to create humid condition. The pathogen was isolated on PDA medium amended with chloramphenicol by putting small piece of surface sterilized diseased tissue. Host range study was employed through artificial inoculation [3].

RESULTS AND DISCUSSION

During survey, rotting of fruit (pod) of french bean (*Phaseolus vulgaris* L.), dolichos bean (*Dolichos lablab* L.) and pea (*Pisum sativum* L.) was noted at Kalyani (Nadia, West Bengal) and Sriniketan (Birbhum, West Bengal) markets. In each case there was water soaked lesion and white mycelial growth on the fruits (Fig.1, 3). On incubation in humid condition the infected fruits became covered with profuse white cottony mycelial growth (Fig. 2). In case of bean, sclerotia were formed in infected fruit (Fig. 4) on incubation in humid condition. Infected fruits without prominent external symptoms if kept in vegetable tray of common refrigerator, the pathogen continued its growth. Infection of *S. sclerotiorum* was initiated at crop growing field and the infection spread to the healthy fruits of the vegetable in transit as the condition during transit is favourable for spread of the infection.



Fig-1: Sclerotinia rot of dolichos bean



Fig-2: White cottony growth of the pathogen on incubation



Fig-3: Sclerotinia rot o pea



Fig-4: Sclerotia formation over mycelial growth on French bean

The pathogen was isolated on PDA medium amended with chloramphenicol to record the colony and sclerotial morphology. Based on the growth and

sclerotial characteristics on PDA, the pathogen was identified as *Sclerotinia sclerotiorum* [3, 5]. Isolate of *S. sclerotiorum* from individual host caused rotting of the fruits of the three plants (*Phaseolus vulgaris*, *Dolichos lablab*, *Pisum sativum*) on artificial inoculation [3].

Hansda et al. [2] recorded similar market disease on carrot in West Bengal. This is new report of post harvest Sclerotinia rot of french bean (*Phaseolus vulgaris*), dolichos bean (*Dolichos lablab*) and pea (*Pisum sativum*) by *Sclerotinia sclerotiorum*.

It was an interesting observation that the thrown out infected fruits initiates disease in french bean in homestead garden. White rot infected vegetables should not be used as a material for composting, where the pathogen may perpetuates by forming sclerotia. So, care should be taken to destroy rotted or infected vegetables during winter months.

REFERENCES

1. Chupp C, Sherf AF; *Sclerotinia diseases in Vegetable and their Control*. The Ronald Press Company, New York, 1960; 43-46.
2. Hansda S, Ray SK, Dutta, S, Khatua DC; Sclerotinia rot in West Bengal. Journal of Mycopathological Research, 2014; 52(2): 273-278.
3. Khatua DC, Pauraia N, Mondal B; Sclerotinia rot of *Ocimum sanctum* and the host range of the pathogen. International Journal of Agriculture, Environment & Biotechnology, 2014; 7(3): 651-656.
4. Mondal B, Khatua DC, Hansda S, Sharma R; Addition to the host range of *Sclerotinia sclerotiorum* in West Bengal. Scholars Academic Journal of Biosciences, 2015; 3(4):361-364.
5. Purdy LH; *Sclerotinia sclerotiorum*: history, diseases and symptomatology, host range, geographic distribution, and impact. Phytopathology, 1979; 69:875-880.
6. Willetts HJ, Wong AL; The biology of *Sclerotinia sclerotiorum*, *S. trifoliorum* and *S. minor* with emphasis on specific nomenclature. The Botanical Review, 1980; 46: 101-165.
7. Saharan GS, Mehta N; Economic importance. In: *Sclerotinia Diseases of Crop Plants: Biology, Ecology and Disease Management*. Springer, India, 2008; 41-45.
8. Iqbal SM, Ghafoor A, Ahmad Z, Haqqani AM; Pathogenicity and fungicidal efficacy for *Sclerotinia* rot of brinjal. International Journal of Agriculture and Biology, 2003; 5(4): 618-620.