



## Emerging threat of *Sclerotinia sclerotiorum* causing white/cottony stem rot of mesta in India

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**Received:** 03 Sep 2015. **Published:** 13 Nov 2015. **Keywords:** Hibiscus, fungal plant disease, sclerotia

Mesta (*Hibiscus sabdariffa* and *H. cannabinus*, Malvaceae) is considered the third most important commercial crop in bast fibre production. Over the last three years, disease has become a major emerging threat to cultivation of mesta for commercial seed production. During December and January of 2012-14, a stem rot was noted in the seed crop of mesta with a disease incidence up to 50% at the CRIJAF Research Farm in Barrackpore, West Bengal, India. Initial disease symptoms appeared in the form of water-soaked lesions on the stem resulting in eventual dieback of the plant during the capsule and boll formation stages. Lesions of infected stems and bolls usually developed patches of white, fluffy mycelial mats often with large, irregular, black-coloured sclerotia, typical of *Sclerotinia sclerotiorum*.

Infected plants were collected and the diseased stem tissue was surface sterilised for one minute in 1% mercuric chloride. The stem pieces were plated on potato dextrose agar (PDA) and incubated at 20 ± 2°C for 10 days. After incubation, all colonies recovered produced abundant, irregular, large, black-coloured sclerotia (0.5-1.5 cm) on PDA. Germinated sclerotia produced white-coloured colonies with hyaline, septate, branched hyphae. The isolated fungus was identified as *S. sclerotiorum* based on morphological and cultural characteristics of the mycelia and sclerotia (Purdy, 1979; Willets & Wong, 1980; Bolton *et al.*, 2006).

To fulfil Koch's postulates, mycelial plugs (5 mm diameter), obtained from 10-day-old cultures grown on PDA, were dipped in a 1% gelatin solution and placed on the wounded stem of three two-month-old healthy mesta plants (var. CRIJAF-R-2). Control plants were treated similarly but were inoculated with a plug of sterile PDA. The wounded portion of the stem was wrapped with plastic film. All the inoculated and control test plants were kept in the greenhouse for observation. Inoculated mesta plants developed lesions within 15-20 days after incubation at 20°C followed by the appearance of white mycelia and sclerotia on the stem. Plants showed dieback symptoms similar to those originally observed in the field. *S. sclerotiorum* was re-isolated from the infected stems of inoculated mesta plants and identified morphologically. Control plants remained symptomless and the pathogen was not recovered.

*Sclerotinia sclerotiorum* causes disease on a wide range of economically important plants throughout the world but very little information is available with reference to mesta. White/cottony stem rot is a serious limiting factor for mesta seed production due to the ineffectiveness of

available control measures. In 1934, Mundkur reported this is an important disease of mesta. Tripathi *et al.* (2013, 2014) also observed *Sclerotinia* stem rot as a serious threat to mesta seed crops, however, jute and flax seed crops planted in the same spot were free from this disease. Currently, commercial mesta seed production is gaining acceptance among farmers compared to earlier practices of growing mesta only as a fibre crop. This report highlights the emergence of this pathogen in North East India and the importance of developing disease-free plants for conservation and exchange of germplasm for crop improvement under the International Plant Protection Convention, as well as management of the disease under a changing climatic scenario.

### Acknowledgements

The authors acknowledge the research facilities provided by the Director, ICAR - Central Research Institute for Jute and Allied Fibres, Barrackpore, Kolkata.

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**To cite this report:** Tripathi AN, De RK, Sharma HK, Karmakar PG, 2015. Emerging threat of *Sclerotinia sclerotiorum* causing white/cottony stem rot of mesta in India. *New Disease Reports* 32, 19. <http://dx.doi.org/10.5197/j.2044-0588.2015.032.019>

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