New Disease Reports

First report of *Sclerotinia sclerotiorum* on *Mimosa pudica* in India

T.R. Borah [1,2], S. Dutta [2]* and A.R. Barman [2]

[1] *ICAR Research Complex for NEH Region, Nagaland Centre, Medziphema, Nagaland -797106, India*; [2] *Department of Plant Pathology, Bidhan Chandra Krishi Vishwavidyalaya, Nadia, West Bengal -741252, India*

*E-mail: subratadutta1972@gmail.com

Received: *21 Jun 2018.* ***Published:*** *17 Sep 2018.*

Mimosa pudica (sensitive plant), a native of tropical America is grown in many parts of the world including India. The plant contains a range of phytochemicals that have been used in traditional medicine (Ahmad *et al*., 2012). *Mimosa pudica* is also used as green manure, cover crop and forage for cattle, but it can also be a weed in tropical agriculture.

Between November 2016 and February 2017, defoliation and stem rot was observed on *M. pudica* in Medziphema, Nagaland, India (25.7573°N, 93.8330°E). Initial symptoms included paleness of the leaves which gradually drooped, wilted and fell. The fungus attacked the plants from leaves to twigs close to the soil (Fig. 1). Occasionally, white mycelia and sclerotia were present on infected tissue of twigs and stems (Fig. 2). Approximately 20 to 50 % plants in three locations were infected. Diseased leaves and stems were collected, washed and cut into small pieces (5 × 5 mm). The tissue pieces were surface sterilised with 1% sodium hypochlorite for one minute, washed with sterile distilled water, plated on potato dextrose agar (PDA) and incubated in the dark at 22 ±2°C. The fungus completely covered the Petri plate (9 cm diameter) by the fourth day (growth rate 1 mm/h) and after 8 days it produced large black sclerotia (up to 6.2 mm in length). Morphological and microscopic observations were consistent with *Sclerotinia sclerotiorum*.

Koch's postulates were fulfilled by inoculating a mycelial plug from the isolate (2 mm diameter) on the leaves and twigs of three 75-day-old *M. pudica* plants grown in pots (25 cm diameter) in a glasshouse (Fig. 3). Inoculated plants were maintained at 25°C, 90% relative humidity and 12 hr alternating light and dark periods. Three uninoculated controls were also maintained under the same conditions. On the fifth day inoculated plants showed symptom initiation consistent with field observations including wilting of leaves and defoliation, and after 10 days, infection spread from the side shoots to the main stem. Two-three days later, cottony white mycelia and sclerotia were seen on the infected tissue around the point of inoculation (Fig. 4). Control plants remained symptomless and healthy. The fungus, re-isolated from the infected plant parts of the inoculated plants, exhibited identical morphological and microscopic features with the fungus originally obtained from infected field plants (Fig. 5). The culture was deposited at ICAR-NBAIM, UP, India with Accession No. NAIMCC-F-03354. Fungal genomic DNA was extracted using the CTAB method and amplification of the ITS 1 - ITS 4 region with primer pairs, ITS 1 (5'-TCCGTAGGTGAACCTGCGG-3') and ITS 4 (5'-TCCTCCGCTTATTGATATGC-3') (White *et al.*, 1990) yielded a c. 500 bp amplicon which was sequenced. The nucleotide sequence (GenBank Accession No. MF563996) showed 100% identity to *S. sclerotiorum* (KM221197). The pathogen is known to be virulent on a number of hosts worldwide (Boland & Hall, 1994) as well as in India (Mondal *et al*., 2015).

Review of the literature revealed that this is the first report of leaf and stem rot of *Mimosa pudica* caused by *S. sclerotiorum*. This new host may aid survival and spread of the ubiquitous pathogen to other new hosts and threaten the production system if effective management strategies are not implemented.

Acknowledgements

The authors would like to thank Dr. N. Haque for providing logistic support during survey and collection of sample.

References

Ahmad H, Sehgal S, Mishra A, Gupta R, 2012. *Mimosa pudica* L. (Laajvanti): An overview. *Pharmacognpsy Review* **6**, 115-124. http://dx.doi.org/10.4103/0973-7847.99945

Boland GJ, Hall R, 1994. Index of plant hosts of *Sclerotinia sclerotiorum*. *Canadian Journal of Plant Pathology* **16**, 93-108. http://dx.doi.org/10.1080/07060669409500766

Mondal B, Khatua DC, Hansda S, Sharma R, 2015. Addition to the host range of *Sclerotinia sclerotiorum* in West Bengal. *Scholars Academic Journal of Biosciences* **3**, 361-364.

White TJ, Bruns T, Lee S, Taylor JW, 1990. Amplification and direct sequencing of fungal ribosomal RNA genes for phylogenetics. In: Innis MA, Gelfand DH, Sninsky JJ, White TJ, eds. *PCR Protocols: A Guide to Methods and Applications*. New York, USA: Academic Press Inc., 315-322. http://dx.doi.org/10.1016/B978-0-12-372180-8.50042-1

Figure 1

Figure 2

Figure 3

Figure 4

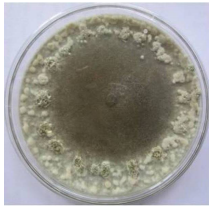

Figure 5

To cite this report: Borah TR, Dutta S, Barman AR, 2018. First report of *Sclerotinia sclerotiorum* on *Mimosa pudica* in India. *New Disease Reports* **38**, 14. http://dx.doi.org/10.5197/j.2044-0588.2018.038.014

This report was published on-line at www.ndrs.org.uk where high quality versions of the figures can be found.