

Brown spot - A new disease of vanilla (*Vanilla planifolia* Andrews) from India

R S Bhai & M Anandaraj

Indian Institute of Spices Research

Marikunnu P.O., Calicut - 673 012, Kerala, India.

E-mail: suseela@iisr.org

Received 07 December 2005; Revised 17 July 2006; Accepted 5 August 2006

Abstract

A new disease characterized by the appearance of small water-soaked spots which later developed into characteristic brownish sunken lesions on vanilla beans (*Vanilla planifolia*) was noticed during September 2004 in Kozhikode District (Kerala) where vanilla is grown as an intercrop with coconut, arecanut and clove. Studies on the causal organism and pathogenicity tests showed that the disease is caused by the fungus *Cylindrocladium quinqueseptatum*.

Keywords: brown spot, *Cylindrocladium quinqueseptatum*, vanilla, *Vanilla planifolia*.

Vanilla (*Vanilla planifolia* Andrews), is widely cultivated in South India for its aromatic compound vanillin which is used in confectioneries, perfumes and medicine. During September 2004, a new disease of vanilla beans was noticed in Chempukadavu in Kozhikode District (Kerala) where vanilla is grown in a large scale intercropped with coconut (*Cocos nucifera* L.), arecanut (*Areca catechu* L.) and clove (*Syzygium aromaticum* L. Merr. & Perry.). The intensity of infection ranged from 10% to 90% on the beans.

The infection was initiated as small water-soaked spots on the beans which later developed into characteristic brownish sunken lesions. The lesions were either elongated, round or oval with sunken centre and the size varied from 1 to 10 mm. Such lesions coalesced and formed larger lesions in severe cases. The lesions showed characteristic brown to black periphery and reddish brown depressed or sunken centre resembling anthracnose symptoms. Leaves of the affected plants also showed similar spots. An affected

bean had more than 5–10 lesions and almost all the beans in a bunch were infected (Fig. 1).

The causal organism was brought into pure culture on potato dextrose agar medium. On the basis of morphological and cultural characters, the fungus was identified as *Cylindrocladium quinqueseptatum* Boedijn & Reitsma. The pathogenicity of the fungus was established on vanilla beans and leaves, rubber (*Hevea brasiliensis* (Willd. Ex A. Juss.) Mull. Arg.), allspice (*Pimenta dioica* (L.)) and clove (*S. aromaticum*) by artificial inoculation.

Brown rot caused by *C. quinqueseptatum* has not been reported in vanilla so far and is a new report from India. *Cylindrocladium* sp. has been reported as a pathogen in many spice crops (Sarma & Nambiar 1978; Nair & Menon 1983; Anandaraj & Sarma 1992; Sarma *et al.* 1994), orchids, ferns (Uchida & Kadoka 1997); ornamental crops (Bauer 2004) and even trees (Sarma *et al.* 1985; Jayasinghe & Wijesundera 1996).



Fig. 1. Symptoms of brown spot on vanilla

References

- Anandaraj M & Sarma YR 1992 A new leaf rot in *Pimenta dioica*. Indian Phytopathol. 45 : 276–277.
- Bauer B 2004 Bad fungi. The number one rose problem. Accessed from <http://www.rose.roses.com/problems/fungi.html>. on 26 December 2005.
- Janice U Y & Chris K Y 1997 Diseases of leather leaf fern caused by *Calonectria* and *Cylindrocladium* species. Plant Disease 11. Cooperative Extension Service, College of Tropical Agriculture and Human Resources, University of Hawaii, Manoa.
- Jayasinghe C K & Wijesundera R L C 1996 *Cylindrocladium quinqueseptatum*: Cultural characteristics and reproductive morphology of the clove isolate IMI 342173 from Sri Lanka. J. Rubber Res. Ins. Sri Lanka 77 : 28–37.
- Nair M C & Menon M R 1983 Diseases of tree spices. In: Nair M C & Menon M R (Eds.) Diseases of Crop Plants of Kerala (pp. 177–189). Kerala Agricultural University, Mannuthy, Trichur.
- Sarma Y R, Anandaraj M & Venugopal M N 1994 Diseases of spice crops. In: Chadha K L & Rethinam P (Eds.) Advances in Horticulture Vol. 10, Plantation & Spice Crops, Part 2 (pp. 1015–1057). Malhotra Publishing House, New Delhi
- Sarma Y R & Nambiar K K N 1978 *Cylindrocladium* leaf rot of clove. Pl. Dis. Repr. 62 : 562–564.
- Sarma Y R, Nambiar K K N & Brahma R N 1985 Leaf rot of cashew caused by *Cylindrocladium quinqueseptatum* Boedijn and Reitsma. Acta Hort. 108 : 145–149.