
Short Communications

Die-back disease of *Cycas* – a new record from Burdwan, West Bengal

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Cycas circinalis is an important gymnospermic ornamental plant. Recently, disease symptoms that resemble those of die-back were observed in 15-18 years old *C. circinalis* planted in and around Burdwan University campus of West Bengal. Based on the morphological and cultural characters, the disease-causing organism was identified as *Lasiodiplodia theobromae*.

Key words : *Cycas circinalis*, die-back, *Lasiodiplodia theobromae*

Cycas circinalis Linn. is a dioecious gymnospermic plant (180-600 cm high) belongs to the family Cycadaceae (Fig. 1). The plant has immense ornamental value and grown in different Indian gardens. A sago, similar to that obtainable from palms, is extracted from the trunk. The bark and seeds ground to a paste with coconut oil are used as poultics for sores and swellings. The juice of the tender leaves is said to be useful for flatulence and vomiting. The pollen is narcotic (Wealth of India, 1981).

During a recent survey in and around Burdwan, West Bengal, a hitherto unrecorded die-back disease of *Cycas circinalis* was noticed. The disease on the plant might be observed at any time of the year but it was most conspicuous during September-November. The specific symptoms of the disease were recorded.

The infected tissues from roots, stem and leaves were collected with the help of a sterilized knife and carried to the laboratory. Tissues were surface sterilized by dipping them in 0.1% HgCl₂ for one minute and then washed with sterilized distilled water. A small portion of the tissue was placed on

potato dextrose agar (PDA) plate and incubated at 25°C for 7 days.

Pathogenicity test was carried out with the isolated fungus. In each experiment, healthy seedlings were selected. The soil of the earthen pots for growing the *Cycas* seedlings was sterilized. Healthy seedlings (18-20 cm) were transplanted in the earthen pots. When the seedlings reached about 30 cm height, the soil at the base of each plant was inoculated with 50 ml mycelial suspension. All the plants were irrigated properly after inoculations and they were monitored periodically for the development of the disease symptoms.

After the manifestation of the disease, the symptoms were recorded and compared with the original symptoms. The pathogen was again isolated from the diseased area and verified with the previously isolated cultures.

The infected plants exhibited typical symptoms of dying back of twigs from tip downwards and defoliation of the trunk resulting in a loss of general health (Fig. 2). The whole plant on drying appeared to have a burning symptoms. Some blackish spots



Fig 1. Healthy plant (X 1/34)



Fig 2. Diseased plant (arrow indicates diseased area) (X 1/34)

were observed at the junctures of the infected parts of the stem. Bark was easily pluckable. In the bottom of the trunk some warty outgrowths were developed. Black dusty layer on the drying bark of the trunk was noticed. Other symptoms of this disease included yellowing of leaves; scorching of the leaf margins; small leaves turned brown, shriveled and fall and production of suckers on the trunk. Defoliation was associated with die-back of the trunk leading to complete mortality.

On the basis of microscopic and cultural characters the causal organism isolated from different parts of the affected plant was identified as *Lasiodiplodia theobromae* (Pat.) Griffiths & Maubl. (Syn. *Botryodiplodia theobromae* Pat.) with the help of keys of Nagamani *et al.* (2006). The mycelium of the pathogen composed of branched, septate and light brown coloured hyphae. Conidia are recorded to be elongated with longitudinal striations, hyaline when young and dark brown at later stages, thick walled,

two-celled, $24-32 \times 8-15 \mu\text{m}$ and borne on hyaline conidiophores ($40-50 \mu$ long).

Pathogenicity test was conducted with the isolated *Lasiodiplodia theobromae* which fully satisfied the Koch's postulates.

A combination of environmental stresses and biotic organisms that interact may weaken the resistance and eventually kill the plant as rhizosphere soil of infected *Cycas* plant was found to have higher water content and more acidic than the soil where healthy plants are grown naturally.

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