



First report of peduncle blight of tuberose caused by *Lasiodiplodia theobromae* in India

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Tuberose (*Polianthes tuberosa*) is an important ornamental plant cultivated in many sub-tropical and tropical areas of the world. Tuberose is commercially cultivated for the cut flower trade and extraction of its natural flower oil. In India, commercial cultivation of tuberose is practiced in numerous states. In a survey carried out during 2010 in Madurai and Dindugal districts of Tamil Nadu State, tuberose was found to exhibit blossom blight followed by peduncle dieback starting from the tip, and leaf blight at the tips (Figs. 1, 2). Peduncle blight in the area was observed with an incidence up to 43%. When infection occurred on blossoms it led to a total loss of flower buds. Several pycnidia were observed over the infected spike.

The fungus, isolated from the infected peduncles, blossoms and leaves, initially produced white mycelium on potato dextrose agar (PDA) that turned black to grey with black pycnidia on the surface. At first, pycnidial primordia appeared as tiny, dark brown, slightly raised spots. Later, dark brown, flask-shaped, ostiolate pycnidia, 110-170 µm x 60-130 µm in size appeared in seven-day-old cultures (Fig. 3). The ostiole was circular and oriented at the apex of an elongated neck through which conidia extruded. Conidia were initially globose to oblong, hyaline and unicellular later turning brown and septate, measuring 18.5-21.7 µm x 8.0-11.2 µm (Fig. 4). The fungus was identified as *Lasiodiplodia theobromae* based on pycnidial and spore characteristics (Barnett & Hunter, 1998). Identification was confirmed by the Indian Type Culture Collection Centre of the Division of Plant Pathology, Indian Agricultural Research Institute, New Delhi (No. 6751/11).

Pathogenicity testing was conducted in a glasshouse using four-month-old healthy plants. Five plants were inoculated by making a vertical cut with a sterilised needle 3 mm deep in the peduncle region below the calyx. A fungal disc of *L. theobromae*, taken from a seven-day-old culture grown on PDA, was placed over the wound, covered with sterile moist cotton and wrapped with Parafilm. Five additional control plants were treated similarly using only PDA. All inoculated plants produced typical blight symptoms seven days after inoculation. The fungus was consistently re-isolated from all inoculated plants. Control plants did not show any symptoms. Pathogenicity was also confirmed by a detached flower

technique in the laboratory. Culture discs (5-mm diameter) from a seven-day-old *L. theobromae* culture were placed close to the calyx of six healthy detached flower buds sitting on a moistened filter paper in a 150-mm-diameter petri dish. Control flower buds were treated similarly with discs of PDA alone. Symptoms developed only on the treated flower buds five days after inoculation with the lesion length increasing over time. Isolations from these lesions confirmed the presence of *L. theobromae*.

The fungus *L. theobromae* infects monocot and dicot plants causing an array of symptoms including shoot blight and dieback. In cashew, it causes drying of petals and other flower parts followed by the dieback of peduncles leading to inflorescence blight (Olunloyo, 1979). The fungus is reported also to cause necrosis and dieback of shoots on mango (Khanzada *et al.*, 2004) and grapevine (Wood & Wood, 2005). There is a previous report of *L. theobromae* on polianthes in Cuba (Arnold, 1986). However, occurrence of peduncle blight caused by *L. theobromae* in tuberose is a new record in India.

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Figure 1



Figure 2

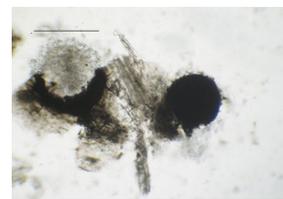


Figure 3

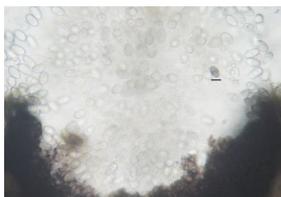


Figure 4

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