

Anamorph of *Podosphaera xanthii* on *Momordica cochinchinensis* in India

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Abstract. In April 2007, a severe outbreak of powdery mildew was observed on *Momordica cochinchinensis*. Based on the morphological characters the pathogen was identified as an anamorph of *Podosphaera xanthii*. This is the first report of this organism causing powdery mildew on *M. cochinchinensis* in Meghalaya, India.

Sweet gourd (*Momordica cochinchinensis*) is locally known as kheksa or kakrol and is grown as a vegetable in the north-eastern part of India (Ram *et al.* 2002). The plant is perennial in nature with tuberous roots. This crop is grown on land which is not suitable for other vegetables because of high acidity and low fertility (Yadav *et al.* 2005).

Diseased leaves of *M. cochinchinensis* were collected during April 2007 from Barapani, Meghalaya (north-east India) and were found to be heavily infected by powdery mildew. Symptoms included grayish white powdery growth consisting of epiphytic mycelia and conidia on both surfaces of the leaves (Fig. 1). Older leaves were found to be more susceptible. Later the lesions turned darker in colour because of heavy hyperparasitism by *Ampelomyces quisqualis*. Heavy defoliation was also observed in the case of severely infected plants. A voucher specimen has been deposited in IMI Herbarium, CABI, UK (IMI 396623).

Hyphae were up to 4–5 µm wide (7–8 µm at the point of origin of conidiophores) with indistinct appressoria. Conidia were harvested by dislodging them from infected tissue onto a strip

of clear tape, using a camelhair brush. The tapes were mounted on microscope slides (Correll *et al.* 1987). Conidiophores were straight and unbranched containing cylindrical foot cells (35–54 × 9–11 µm) followed by a few smaller and slightly narrower cells (13–16 × 8–10 µm); conidia were ellipsoidal in shape (24–32 × 14–17 µm) and produced in chains. Basal septae of conidiophores were adjacent to mycelium (Fig. 2). Fibrosin bodies were present (observed using 3% KOH). Germ tubes developed laterally (forked in a few cases) (Fig. 3). Heavy parasitism by *A. quisqualis* was also observed. Pycnidia of *A. quisqualis* were formed on conidiophores of the powdery mildew pathogen (Fig. 4).

Golovinomyces cichoracearum, *G. orontii*, *Oidium erysiphoides* and *Podosphaera xanthii* have been reported on *Momordica* spp. (Farr *et al.* 2005). In our case the presence of fibrosin bodies and indistinct appressoria ruled out the possibility of all the reported species except *P. xanthii*. Based on these observations the organism was identified as an anamorph belonging to *P. xanthii* (Braun *et al.* 2001). No perfect stage



Fig. 1. Powdery mildew symptoms on *Momordica cochinchinensis* (IMI 396623).



Fig. 2. Conidiophore and conidia of *Podosphaera xanthii* (IMI 396623). Bar = 20 μ m.



Fig. 3. Lateral germination of conidia of *Podosphaera xanthii* (IMI 396623). Bar = 20 μ m.

(chasmothecium) was found to be associated with this fungus. Pathogenicity was confirmed by dusting conidia on healthy plants of *M. cochinchinensis*, non-inoculated plants served as controls. Inoculated plants developed symptoms after 8–9 days, whereas control plants remained healthy.



Fig. 4. Pycnidia of hyperparasite *Ampelomyces quisqualis* on conidiophore of *Podosphaera xanthii* (IMI 396623). Bar = 20 μ m.

Powdery mildew caused by *Oidium* sp. on *M. cochinchinensis* had been reported by Singh and Vawra (1988). But the pathogen has not been described in sufficient detail (except conidial size, 20–60 \times 10–20 μ m and conidia in chains). Some very important observations such as the presence or absence of fibrosin bodies, description of conidiophore (foot cell size, etc.) and appressorial type have not been mentioned which would have helped in identifying the pathogen more accurately. To our knowledge, this is the first fully described record of powdery mildew caused by an anamorph of *P. xanthii* on *M. cochinchinensis* in India. This disease is of concern to the tribal population of north-east India since sweet gourd is grown as a vegetable crop and powdery mildew comes in a devastating form in this region.

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