

## Diversity Of Powdery Mildew Fungi On Some Local Plants In Amravati, Maharashtra, India

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**Abstract:** Powdery mildew is one of the common disease in which the casual organism forming colonies on leaves and tender portions of many of the economically important plants. The present study was carried out in the month of August to November, 2015 to survey the powdery mildew infection on some local plants in the Amravati district of Maharashtra state (India). During the survey four different species of fungi were reported out of which *Leveillula clavata* was first recorded on new host *Euphorbia geniculata* in India.

**Keywords:** Powdery mildew, Erysiphales, *Leveillula clavata*, *Sphaerotheca balsaminae*, *Erysiphe cichoracearum*, *Podosphaera xanthii*.

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### I. Introduction

Powdery mildew is a disease of common occurrence on variety of cultivated and wild plants across the world causing significant damage both indoor and outdoor cultivated plants. The Erysiphales is fungal group which causes powdery mildew on about ten thousand angiosperm plants (Amano 1986, Braun 2011). The biodiversity of Erysiphales is less explored in tropical and subtropical regions compared with temperate regions of Northern Hemisphere (Hirata 1976). This study revealed that there are still many undescribed and unique powdery mildew species in this region. In this research article diversity of powdery mildew fungi is reported on some local plants.

### II. Material And Method

A survey was carried out at different localities in Amravati district of Maharashtra (India) in the month of August to November 2015 to assess the incidence of powdery mildew on field plots, farmyard or other cultivation unit in locality. Samples containing of aerial parts of *Impatiens balsamina*, *Xanthium indicum*, *Euphorbia geniculata* and *Coccinia cordifolia* were brought to the laboratory for further investigation. Mounts were prepared directly from live specimens in lactophenol stain. Fungal morphology including hyphae, appressoria, conidia and conidiophores were studied using light microscope. Dimension of the structure were studied using ocular micrometer and micrographs were taken with camera integrated with microscope. The anamorph characters were recorded as the teleomorph state was absent.

### III. Result And Discussion

#### **Leveillula Clavata Sp. Nov.**

**Host-** *Euphorbia geniculata* Ortega (Family- Euphorbiaceae)

The mycelium was evident on the lower surface while on the upper surface only slight chlorotic areas appeared. Conidia were hyaline, clavate, measuring 60-98 x 23-45 μm and located at the apex of conidiophores. Conidiophores arise from stromata. Conidium borne singly on conidiophore. On germination, germ tube was form near the end of conidium. The teleomorph has not been observed.

This fungus was reported from Italy on the other species of *Euphorbia* i.e. *E. pulcherrima* (Minuto A. et.al. 2006). The available literature evidenced that this species is not reported earlier anywhere in India on this host.

#### **Sphaerotheca Balsaminae Auct.P.P.**

= *Fibroidium balsaminae* (Rajd.) U. Braun

Host – *Impatiens balsaminae* L. (Family- Balsaminaceae)

A white conspicuous mycelium colonized leaves, irregular patches spread on the entire leaf surface; hyphae hyaline, appressoria not distinct, conidiophores arising from foot cell 72-109 x 16 μm; conidiophores straight, foot cells followed by 1-3 shorter cells, conidia ellipsoid, ovoid or barrel shaped conidia 24-31 x 12-17.6 μm with fibrosin bodies.

This fungus was originally reported by Rajderkar N.R. as *Oidium balsaminae* on *Impatiens balsaminae* in 1966 from Maharashtra, India. It was also recorded by Bappammal, Housagoudar and Subbarayan from Tamilnadu and Biju C.K. et.al. (2013) reported from Kerala.

### **Erysiphe Cichoracearum D.C.**

Host – *Coccinia cordifolia* ( Family- Cucurbitaceae)

Mycelium colonized the upper surface of leaves. Hyphae hyaline; conidia 36.25x15.83µm in size. Fibrosin bodies were absent in conidia. Appresoria nipple shaped. *Erysiphe cichoracearum* D.C. is now known as *Golovinomyces cichoracearum* (D.C.) V.P. Heluta. *Sphaerotheca fuliginea* and *Erysiphe cichoracearum* (*G. cichoracearum*) have been reported to infect cucurbits in different states in India. At the same time the dominance pattern and host specificity, *Sphaerotheca fuliginea* infecting cultivated cucurbits and *Erysiphe cichoracearum* infecting *Coccinia cordifolia* are also comparable in the other states of India. These two species are considered as causal organism of the disease in different parts of the world ( Labeda et.al. 2010; Khan and Sharma , 1995).

### **Podospaera Xanthii**

Host- *Xanthium strumarium* L. ( Family- Asteraceae)

Initial sign appeared as thin white colonies, which subsequently developed abundant growth on upper surface. As disease progressed brown discoloration extended towards downward side. Conidia borne singly and terminally on conidiophore. Conidia of size 21.2 to 29.5 µm ( average 25.8 µm) long x 12.1 to 14.9 µm wide, ellipsoid with round apex and truncate base. Conidiophores straight to slightly curved 65.2 to 105.3 µm long x 7.3 to 12.2 µm wide. No fibrosin bodies were observed in the conidia. Morphological characteristics were consistent with description of *Podospaera xanthii* ( Syn.*P.fusca*). This fungus was described as *Sphaerotheca fuliginiae* by several researchers and consider to be one of the major powdery mildew fungus of cucurbits.

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