



## Fungal disease complex in Balsam plant-A new record from Uttar Pradesh

Nishat Asif

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### Abstract

During survey for foliicolous fungi in Bahraich the authors noted a fungal disease complex in Balsam plants *Impatiens balsamina* (L.) Balsaminaceae. The plants were found suffering from black stem rot as well as the same plant was infected with blight and powdery mildew of leaves. Microscopic examination of infected samples and cultural studies reveals that black stem rot was caused by *Fusariumoxysporum* whereas blight and powdery mildew was caused by *Rhizoctoniasolani* and *Cercosporasp.* respectively.

**Keywords:** Disease complex, Balsam plant, foliicolous fungi

### Introduction

*Impatiens balsamina* (L.) family-Balsaminaceae locally known as Gulmehndi is a very popular rainy season ornamental and ethnomedicinal plant. During survey for foliicolous fungi, author noticed the infection of aforesaid plants. The plants were suffering from black stem rot and the leaves of same plants showed two distinct symptoms. The infected specimens were collected and gone through for the detailed study for the disease symptoms as well as causal organism.

### Material and Methods

Collected disease samples were brought to the laboratory. The laboratory processing for fungus were done by scrap mount, collodion, squash and hand cut section preparation. The causal organism were isolated on PDA medium supplemented with antibiotic and incubated for 6 days at  $25\pm 0^{\circ}\text{C}$  after pouring serial dilution of 1 ml sample following (Ruinen 1961; Kanaujia 1972). For identification of fungi, a thorough survey of literature was done by going through different mycological papers, mycological memories and other relevant mycological monographs viz., Illustrated Genera of Imperfect Fungi, A manual of Soil fungi, Dematiaceous Hyphomycetes and the Genus *Fusarium*.

### Author's Address

P.G.Department of Botany, Kisan P.G.College, Bahraich-271801 (U.P.) India.  
E-mail: asifnashat@gmail.com

Pathogenicity test was also done for the isolated pathogens as described by McCallum and Tekauz (2002).

### Results and Discussion

The infected plants showed lesions on stem which begin as spherical, black water soaked spots (1.0-1.5 cm), which enlarged, coalesced and encircled around the stem and later turn black in colour. Symptoms of the fungus became apparent as the disease progressed. Black growth appeared on the outside of the stem with one-third area of the stem attacked. The progress of the disease was so rapid that the infeted spots collapsed completely after 7 days. Plants infected at the basal part of the stem exhibited dark black collapsed lesion that led to breakage of plant stem tissues become rotted.

Leaves of the same plant showed blight disease. The infection started from apex and developed inwards in the form of light brown water soaked areas. In advanced stages it become dark brown. Infected parts of leaf get brittle and curved inward. Another symptoms which the leaves showed was powdery mildew. Leaves showed white, superficial colonies on both sides. Colonies showed heavy sporulation in form of thick white powdery mass. Infected tissue becomes distorted. Microscopic examination of the infected samples and morphological characters of culture of the isolated pathogens and consultation of monographs reveals that the stem rot is caused by *Fusariumoxysporum* whereas blight is caused by *Rhizoctoniasolani*. The



leaves showing powdery mildew symptoms were due to the presence of *Cercosporasp*. Pathogenicity test by spray method was positive.

Screening of available literature reveals that the balsam black stem rot as well as leaf blight caused by *Fusariumoxysporum* and *Rhizoctoniasolani* respectively is a new record because the same has not been reported hither to either from Bahraich or Uttar Pradesh.

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