

# NEW RECORD OCCURRENCE OF PHAEOPHLEOSPORA LEAF BLIGHT OF EUCALYPTUS IN HIMACHAL PRADESH

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## KEYWORDS

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## ABSTRACT

A study on occurrence and distribution of *Phaeophleospora* leaf blight of Eucalyptus was conducted at Solan district of Himachal Pradesh during August, 2015 to September, 2015. On the basis of morphological characteristics the fungus, the fungus is identified as *Phaeophleospora epicoccoides*, which produces symptoms like purplish brown angular or rectangular lesion and superficial black colour mass on upper surface of the leaves. Spores of *P. epicoccoides* are cylindrical or slightly club-shaped with rough walls and variable numbers of septa often more than four, whose average conidial size is  $35.72 \times 3.32 \mu\text{m}$  and average pycnidia size is  $66.2 \times 37.6 \mu\text{m}$ .

## INTRODUCTION

Eucalyptus are highly favoured plantation species as they are fast growing and easy to cultivate. The timber is an important source of fibre to the international pulp and paper industry. Eucalyptus are also used for the control of various weeds, tolerant to air pollution, insects pests and plant fungal diseases (Vaid *et al.*, 2010; Thakur and Mishra, 2010 and Bisht *et al.*, 2013). A number of foliar plant pathogens have been reported to impact on yields in plantations of eucalypt species in Asia including *Mycosphaerella* spp., *Phaeophleospora* spp., *Cryptosporiopsis* spp. and *Cylindrocladium* spp. (Old *et al.*, 2003, Barber, 2004). Six *Phaeophleospora* species are known to cause leaf blight disease on eucalyptus; *P. delegatensis*, *P. lilianiae*, *P. epicoccoides*, *P. eucalypti* and *P. destructans* and the newly described *P. toledana* (Crous 1998, Crous *et al.*, 2004). Out of these, *P. delegatensis*, *P. lilianiae* and *P. toledana* are limited in their distribution, while *P. epicoccoides*, *P. eucalypti* and *P. destructans* are considered major eucalyptus pathogens (Wingfield *et al.*, 1996, Park *et al.*, 2000, Hood *et al.*, 2002). These fungi are anamorphs of *Mycosphaerella*, although the teleomorph may be unusual or not yet recognised. They are distinguished by their formation of pigmented columns (cirrhi) or irregular aggregations of conidia, often on the abaxial surfaces of leaves, exuding from substomatal pycnidia. *Phaeophleospora epicoccoides*, *P. eucalypti* and *P. destructans* all cause leaf blights and discoloration of the lower crowns that leads to premature defoliation, reduced growth and vigour, and in some instances, tree death within plantations (Park *et al.*, 2000). Objective of this study is to know the occurrence of the *Phaeophleospora* leaf blight of eucalyptus in Himachal

Pradesh and monitoring its occurrence, so that in future this disease could be remain in manageable level.

## MATERIALS AND METHODS

The presence of *Phaeophleospora epicoccoides* during continuous survey from August, 2015 to September, 2015 of different regions in district Solan of Himachal Pradesh has been reported. The infected leaves of the Eucalyptus tree were taken and bring to the laboratory for microscopic analysis. Morphological characteristics the fungus was studied with help of light microscope and conidial and pycnidial size was measured with micrometry (Burgess *et al.*, 2006).

## RESULTS AND DISCUSSION

In Himachal pradesh, *Phaeophleospora epicoccoides* infected young growing shoots of eucalyptus trees, resulting in severe dieback and loss of apical growth. This fungus produces purplish brown angular or rectangular lesion and superficial black colour mass on upper surface of the leaves as shown in figure B (Sharma and Mohanan, 1981). A large amount of inoculum are produced on leaves which are survived on fallen leaves and spores are likely to dispersed in humid environment. *Phaeophleospora epicoccoides* is a common nursery pathogen and spread with infected planting material. *Phaeophleospora epicoccoides* is found predominantly on ageing leaves and it causes early leaf drop. Different species of *Phaeophleospora* are distinguished by their conidial morphology. Spores of *P. epicoccoides* are cylindrical or slightly club-shaped with rough walls and variable numbers of septa often more than four, whose conidial size varies from



Figure A: Multiseptate conidia of *Phaeophleospora epicoccoides*



Figure B: Heavy sporulation of *Phaeophleospora epicoccoides*



Figure C: Pycnidia of *Phaeophleospora epicoccoides*

31.9 x 3.2  $\mu\text{m}$  to 39.1 x 3.7  $\mu\text{m}$  with an average of 35.72 x 3.32  $\mu\text{m}$  (figure A), pycnidia produced is dark coloured, whose size varies from 64.6 x 37  $\mu\text{m}$  to 68.3 x 36.8  $\mu\text{m}$  with an average of 66.2 x 37.6  $\mu\text{m}$  (figure C) as reported by Burgess et al., 2006.

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