

First Report of *Diplodia mutila* on Blue Pine (*Pinus wallichiana*) in Kashmir Valley, India

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Short Communication

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ABSTRACT

Blue pine (*Pinus wallichiana*) is prone to a number of diseases amongst which needle blight caused by *Diplodia mutila* poses a serious threat to its regeneration in Kashmir valley. The disease initiated in the month of March as minute chlorotic spots on current year needles.

Keywords: *Pinus wallichiana*; disease; Kashmir valley; chlorotic spots.

1. INTRODUCTION

Isolation of the fungus *D. mutila* was successfully done from the pycnidia present on the blighted needles of blue pine. The fungus was fast growing covering 42.3 mm of surface area of 90 mm Petri dish incubated at 25°C after 3 days.

The colony on PDA initially was floccose, cottony, raised in centre with dense aerial mass, white in colour after 3 days of incubation. The colour of the colony changed to light olive to light gray after 5 days and finally became dark olivaceous gray with underside black. Pycnidial initials were observed throughout the colony after

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7 days when the colony was exposed to light/dark period of 12-hour cycle exuding creamy conidial mass after 21 days of plate incubation. The mycelium in culture was branched, thick walled, rough, hyaline to brown, septate and measured 2.5-(5.7)-7.5 μm in width. Pycnidia were semi-immersed to erumpent, unimultilocular, and black and measured 350- (518)-600 μm in diameter. The conidiophores were absent. The conidiogenous cells were thin walled, determinate, smooth, cylindrical, sometimes ampulliform, hyaline and measured 12.5-(15.6)-17.5 x 5.0-(6.5)-7.50 μm in size. The conidia were ellipsoidal to cylindrical, some slightly curved, thick walled, smooth with both ends rounded and aseptate some develop single transverse septa after 21 day of discharge, hyaline at discharge, some turn yellowish and finally dark brown at maturity, and measured 22.5-(24.8)-27.5 x 10.0-(13.6)-15.0 μm in size. Perfect state fructifications were not observed in culture.

The pathogenicity of the fungus isolated was successfully established on two year old Blue pine saplings in 7 days and on 5-10 years old trees in 18 days. On the basis of morphological characteristics, pathogenicity and comparison with the authentic descriptions, [1,2,3], the pathogen was identified as *Diplodia mutila* (Fries) what does Mont. represents put it in clear manner Mont. The identity of the pathogens was also confirmed from ITCC, New Delhi under accession no. 9706.15.

2. CONCLUSION

The fungus had earlier been reported on several hosts such as oaks [4], Savin juniper [5] and Palm [6], but this is the first report of the fungus

causing needle blight of blue pine in Jammu and Kashmir state of India.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Tisserat NA, Rossman AY, Nus A. A canker disease of Rocky Mountain juniper caused by *Botryosphaeria stevensii*. Plant Disease. 1988;72:699-701.
2. Alves A, Correia A, Luque J, Phillips AJL. *Botryosphaeria corticola*, sp. nov. on *Quercus* species, with notes and description of *Botryosphaeria stevensii* and its anamorph, *Diplodia mutila*. Mycologia. 2004;96:598-613.
3. Phillips AJL, Alves A, Abdollahzadeh J, Slippers B, Wingfield MJ, Groenewald JZ, Crous PW. The *Botryosphaeriaceae*: Genera and species known from culture. Studies in Mycology. 2013;76:51-167.
4. Ragazzi A, Moricca S, Dellavalle I. Vegetative compatibility and pathogenicity of *Diplodia mutila* isolates on oak. European Journal of Forest Pathology. 1997;27:391-396.
5. Stanosz GR, and Moorman, GW.. Branch dieback of *Savin juniper* in Pennsylvania caused by *Diplodia mutila*. Plant Disease. 1997;81:1-4.
6. Alvarez-Loayza P, White Jr JF, Bergen M, Cadenas C. *Diplodia mutila* new reported causing seedling mortality of *Iriartea deltoidea* palm trees. New Disease Reports. 2007;15:50.

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