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ACREMONIUM ROSEOGRISEUM - A NEW FUNGAL PATHOGEN OF MULBERRY (*MORUS ALBA* L.) FROM AIZAWL (MIZORAM)

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ABSTRACT

Aizawl (latitude23.42°N, longitude 92.94°E), a rainfed zone of North East India is located at 1132 meter above sea level (MSL), where total area under mulberry (*Morus alba* L.) is 5100 hectare.In mulberry field incidence of Powdery mildew (*Phyllactinia corylea*) , Myrothecium leaf spot (*Myrothecium roridum*) and Leaf rust (*Perdiopsora mori*) are predominating in this region. A new foliar disease for the incidence of *Acremonium roseogriseum*, an endophyic fungus was observed. The pathogen was identified from IARI, NewDelhi. Disease incidence appears in the month of October and continues up to January. Disease symptoms are characterized by the presence of off white to ash coloured felty mat on the ventral surface of leaves. The disease is severely affected all ruling mulberry cultivars (viz, S1 and S1635) in Aizwal (Mizoram). *Acremonium roseogriseum* infecting the leaves of Mulberry is a new report from India

KEY WORDS: *Acremonium roseogriseum, Myrothecium roridum, Perdiopsora mori, Phyllactinia corylea.*

INTRODUCTION

Mulberry is cultivated in this region as bush, middle bush or tree forms for its valued leaves for silkworm rearing. Powdery mildew, leaf rust *Myrothecium* leaf spot, are important diseases mulberry in the Eastern and North Eastern region (Maji,2003). *Dutta et al* . (2011) reported that incidence of Powdery mildew , Leaf rust and Myrothecium leaf spot is very common in Aizawl. Disease not only reduces leaf yield but also causes degradation in the quality (Quadri *et al* 1999) and feeding of diseases leaves results prolonging of larval period (Noamani *et al,*1970 and Umesh Kumar *et al* ,1993).

. During recent survey of mulberry diseases in Aizawl, a new foliar disease was observed. During October to January this disease is characterized by appearance off white to ash colour felty mat on the ventral surface of leaves.

MATERIALS AND METHODS

A survey was made in the three villages (Khamrang , Dilkhan, and Seling) of Aizawl district (Mizoram). to collect fungal pathogens from the leaves of mulberry. Herbarium sheets were prepared from the disease infected leaves and also isolated pure culture of the pathogen. For isolation of fungi, diseased specimens were sterilized (surface) by 0.1% Mercuric chloride for 1-10 seconds then rinsed with distilled water. Potato dextrose agar (PDA) medium was prepared and autoclaved at 15lb/inch^2 for 15 minutes and poured into sterilized Petri plates. Disease samples were observed under dissecting microscope to select infected parts and a small piece was taken by sterilized scalpel and transferred to the sterilized Petri plates containing 15 ml PDA media under aseptic conditions. Inoculated Petri plates were kept in BOD incubator at 25±1°C for seven days for the growth of the pathogen. The plates were observed regularly for fungal growth and pure culture was isolated. Pure culture of the isolate was maintained on PDA slants for further study. Infected specimens and isolated fungal culture were used for identification. Specimens were directly observed under stereo microscope and a small piece of selected part was taken from the host tissue on glass slide with the help of sterilized needle. The material was spread over slide by needle and stained with lactophenol cotton blue and studied under Leitz Diaplan microscope.

To study morphology of the fungus, slides were prepared from culture. Small piece from the periphery of fungal colony was taken aseptically with the help of a needle and put on slide, mycelia were spread by needle, stained with lactophenol cotton blue. Measurements of fungi were recorded by ocular micrometer.

In order to study pathogenicity of the fungal isolates, seven days old culture on PDA medium was scraped by sterile brush and suspend in sterile distilled water to obtain 1x 10^6 conidia/ml. Young, healthy vigorously growing mulberry variety S1635 was

inoculated with pathogen suspension on lower surface of leaves with hand sprayer. Inoculated plants were covered with polythene bag for 48 hrs. After that inoculated plants shifted to glass house for disease development.

For identification of fungi, dried herbarium and pure culture was sent to Division of Plant pathology, Indian Agricultural Research Institute, New Delhi

RESULTS AND DISCUSSION

Fungus : *Acremonium roseogriseum* (S.B.Sakseana) W.Gams 1971

= Basionym: *Cephalosporium roseogriseum*, S.B.Sakseana 1955 (LEG;MB 294126)

= Obligate synonym: *Gliomastix roseogrisea* (S.B.Saksena) Summerbell 2011 (LEG; MB 519588)

Nomenclature, Cephalosporium roseogriseum S.B. Saksena-Mycologia 47:895 ,1955

Disease symptoms (Fig- I and 2) are characterized by appearance of off white to ash coloured felty mat on the lower surface of the leaf, which gradually cover entire lower surface of the leaf. Cultural characyers (In PDA media) shows that the growth rate of *Acremonium* sp. is moderate. Fungal colony attained 2.2 cm.in diameter in 15 days at 25±1ºC in Petri plates with PDA media. Mat is ash coloured membranous, slightly powdery in advance zone (FIG - 3).Microscopic study revealed that hyphae are thin hyaline with rod like stands erected from runner like structure, slender, philades mostly single arising from apical hyphae. Conidia ellipsoid but narrow at one end mostly smooth walled (4.2-5 .5 µm / 2.5 – 3.5 µm).

Fig. 1 : Acremoniun roseogriseum* infecting ventral surface of *mulberry as white mycelial mat

Fig. 2 : ***A.roseogriseum* infecting entire leaf of mulberry**

Fig. 3. Culture of *A.roseogriseum* in PDA media.

Acremonium spp. are cosmopolitan in nature. Some species are dermacomycotic in nature Gupta et al 1999). Earlier *Gliomastix novae zelandiae* (= *Acremonium novae zelandiae*) infecting Morus alba was reported from Pakistan (Abbas et al) Fincher et al (1991) reported about infection due to *Acremonium sp.*

Specimens examined:

Acremonium roseogriseum growing on the leaves of Morus alba of Aizawl district Nov.2010 CSRTI BHB # 3 and sent to IARI New Delhi (HCIO- 50149)

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