Foliar disease infection on some forest trees

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Abstract

In a routine survey foliar disease causing fungi were identified as *Phytophthora* sp. on leaves of *Bauhinia variegata*, *Alternaria* sp. on *Cordia dichotoma*, *Helminthosporium* sp. and *Alternaria* sp. on leaves of *Azadirachta indica*, *Helminthosporium* sp on leaves of *Pterocarpus santalims* *Alternaria* sp. on *Ziziphus mauritiana* as well as *Eagle marmelos* and *Fusarium* sp. on *Acacia leucophloea* leaves.

Key words: foliar disease, forest trees, fungi

Introduction

Foliar diseases caused by fungi are a serious problem in forest regeneration and sometimes fungi may cause a heavy mortality in nursery. Many fungal pathogens are carried over through seeds into forest nurseries and become established on seedlings. Apart from these seed borne fungal pathogens, soil borne fungal pathogen have also been shown to be devastating by attacking on young seedlings in forest nursery. Diseases are one of the important limiting factors in the production of forest seedlings within nurseries. Environmental conditions within nurseries are often ideal for the proliferation of disease-causing pathogens. Keeping in view, the present work was done on foliar diseases associated with trees in AFRI Nursery and AFRI Campus.

Materials and method

Collection of foliar disease samples of some forest trees

Infected leaves were collected from forest trees viz., *Acacia leucophloea*, *Cordia dichotoma*, *Pterocarpus santalinus*, *Ziziphus mauritiana*, *Azadirachta indica*, *Eagle marmelos*, and *Bauhinia variegata*.

Isolation and Identification of fungus

Samples of seeds and leaves of plants/trees were collected from nursery and campus of AFRI, Jodhpur and brought to laboratory in polythene bags to avoid aerial contaminations. The Agar plate method as recommended by International Seed Testing Association (1966) was performed for isolation of mycoflora associated with leaves. Pieces of leaves surface were sterilized with 0.01% sodium hypochloride and then washed with sterilized water. These were incubated on PDA medium in Petri dishes and incubated for 7-10 days at 24-25 °C. Microbial colonies developing from leaves were isolated and identified. Slides of spores were prepared after staining with cotton blue and mounted on a glass slide. The slides were examined under microscope and the causal organism was identified with help of book viz., Introduction to Fungi by Webster & Weber (2007).; illustrated Genera of Imperfect fungi by H.L. Barnett & Barry B. Hunter (1972) and Proceeding: DFID Rice-Wheat soil Health Project Mycology and Nematology workshop by Bridge et al. (2001).

Results and Discussion

Infected leaves from forest trees viz., *Acacia leucophloea*, *Cordia dichotoma*, *Pterocarpus santalinus*, *Ziziphus mauritiana*, *Azadirachta indica*, *Eagle marmelos*, and *Bauhinia variegata* were collected and the pathogen was culture on PDA media. Isolated fungus were identified as *Phytophthora* sp. on leaves of *Bauhinia variegata*, *Alternaria* sp on *Cordia dichotoma*, *Helminthosporium* sp and *Alternaria* sp on leaves of *Azadirachta indica*, *Helminthosporium* sp on leaves of Rakt chandan (*Pterocarpus santalims*) *Alternaria* sp on *Ziziphus mauritiana* and *Eagle marmelos* and *Fusarium* sp on *Acacia leucophloea* leaf. Diseases are a serious problem in forest regeneration and important limiting factors in the

production of forest seedlings within nurseries. Therefore, it very important to identify foliar disease of forest trees so that infection can be checked at initial level and management strategy could be prepared to deal with in case of epidemics.

Sankaran et al. (1988) during a routine survey of nurseries and plantations of *Xylia xylocarpa*, *Bombax ceiba*, *Terminalia bellerica*, *Azadirachta indica* and *Pterocarpus indicus* at Peechi, leaf spot diseases caused by: the *Colletotrichum gloeosporioides* on *A. indica* and *T. bellirica*; *G. cingulata* on *B. malabaricum* and *X. xylocarpa*; and *Cylindrocladium quinqueseptatum* on *P. indicus*. Bhat & Hegde (1988) reported 33 fungal pathogens (26 genera) causing disease on 33 forest plants in a survey of forest nurseries and suburbs of Dharwad. The most common pathogen was *Colletotrichum gloeosporioides*.

Singh & Bhalla (2000) collected infected samples from forests of Vindhyan region, Uttar Pradesh and described four new species of *Pseudocercospora* occurring on *Cassia sophora* (*C. sophora*), *Cocculus hirsutus*, *Eucalyptus* sp. and *Woodfordia* sp., respectively.

Mohanan (1988) recorded leaf blight of 1 to 2 yr old seedlings of *P. pinnata* in an experimental plot at Vazhachal (Chalakudy Forest Division) which was caused by *Asperisporium pongamia* and a leaf spot by *Urohendersonia pongamia*.

Harsh et al. (1989) briefly reported for foliage diseases caused by 14 fungal pathogens in the nurseries of Madhya Pradesh. Mehrotra (1990) described about foliar diseases caused by *R. solani* in forest nurseries. Maji et al. (2012), observed that mulberry varieties were affected with foliar diseases viz powdery mildew, leaf rust, *Myrothecium* leaf spot, and *Pseudocercospora* leaf spot. Mehrotra et al. (2004) recorded leaf blight, a new disease of *Bombax ceiba* caused by *Ascochyta bombacina*, from New Forest, Dehra Dun, Uttar Pradesh, India. Dadwal et al. (2007) described a leaf spot and top dying disease of *Ailanthus excelsa* Roxb. caused by *Colletotrichum dematium*.

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