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**FOLIICOLOUS FUNGI COLLECTED FROM NORTH-EASTERN UTTAR PRADESH, INDIA PARASITIZING *CALAMUS TENUIS* ROXB, A MEDICINAL PLANT**

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**ABSTRACT**

Two species of foliicolous fungi have been collected and described from the leaves and leaf sheath of *Calamus tenuis* Roxb., a medicinal plant, named *Dwibahubeeja indica* and *Melanographium calami*.

**Keywords:** Follicolous Fungi, Medicinal Plant, *Calamus tenuis*.

## INTRODUCTION

*Calamus tenuis* Roxb is a plant of Family – Arecaceae. It is used as a medicinal plant by the folk medicinal healers of Bangladesh (Rahmatullah *et al.* 2010). Juice from shoot tips and roots are taken in the morning and evening for seven days and used as antidote to poisoning.

The North-Eastern Uttar Pradesh of India experiences a humid sub-tropical climate and is adorned with lush green vegetation represented by an array of angiosperms and ferns. On these plants, foliicolous fungi, particularly those belonging to the Deuteromycotina frequently occur. Consequently, our earlier surveys of this region have resulted in the description and illustration of several such fungi which were new to science (Chandra *et al.* 1991; Srivastava *et al.* 1994 & 1995; Srivastava and Morgan-Jones, 1996; Misra *et al.* 1997).

In one of our recent surveys of North-Eastern Uttar Pradesh, a number of foliicolous fungi were collected. Amongst these collections were two hyphomycetous forms causing leaf spot diseases to *Calamus tenuis*, which are described and illustrated in this communication.

## MATERIALS AND METHODS

The infected specimens were viewed with unaided eyes so as to have an idea about the nature of symptoms produced, and shape and size of lesions formed on the leaf surface. Scrap mounts of infected portions of the leaves were prepared in Lactophenol-Cotton Blue for preliminary examination and detailed observations and drawing purposes as well. The preparations were examined with the help of compound microscope using different eye pieces (15x) and objective (10x, 40x, 45x and 100x) combinations. Figures showing all the morphological details of reproductive propagules were drawn carefully with the help of Camera Lucida. The measurements of different relevant structures were also taken side by side.

## RESULTS AND DISCUSSION

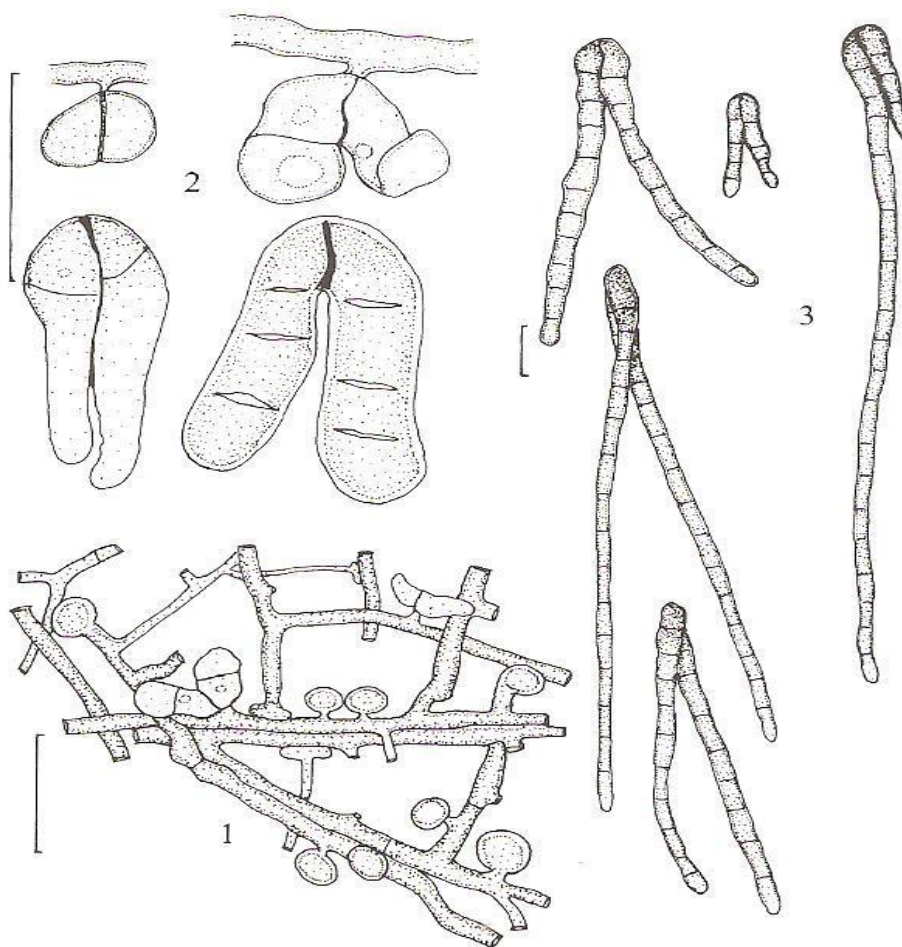
Two different foliicolous hyphomycetes have been described and illustrated which are pathogenic to the medicinal plant *Calamus tenuis* Roxb., as follows:

### *Dwibahubeeja indica* (Fig. 1-3)

Infection spots amphigenous, primarily small, then coalescing to form irregular, large patches. Colonies

epiphyllous, brownish-black with straw-yellow margin. Fungal mycelia are branched at right angles, sparingly euseptate, dark brown. Hyphopodia capitates, globose, thick-walled, 4-8  $\mu\text{m}$  wide. Conidiogenous

cells intercalary on external hyphae, cylindrical to doliform, 1-2  $\mu\text{m}$  long. Conidia bifurcate, conidial base 6-21  $\mu\text{m}$  wide, arms cylindrical, each arm 4-20 euseptate, 30-280  $\mu\text{m}$  X 3-10  $\mu\text{m}$ .



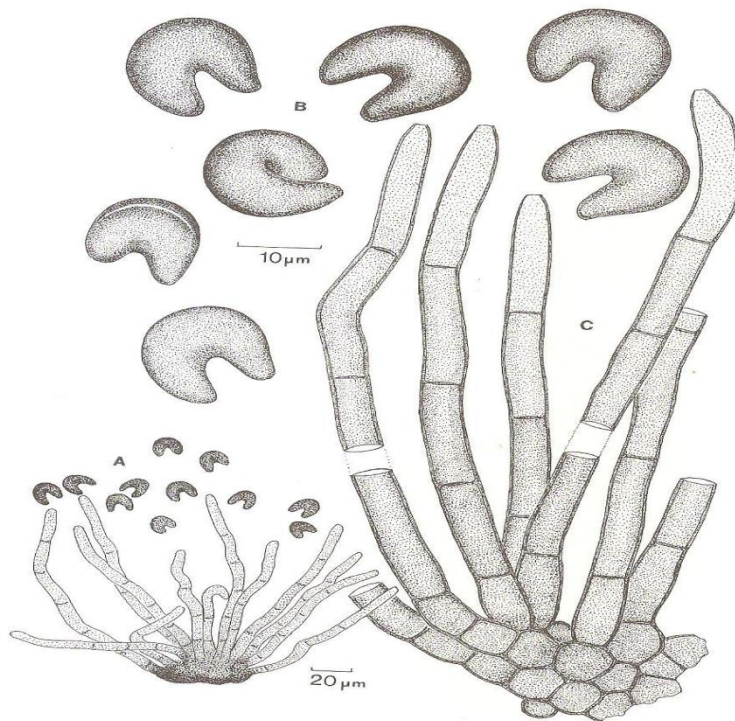
**Fig. 1-3. *Dwibahubeeja indica*. Fig. 1. Mycelium; Fig. 2. Young Conidia; Fig. 3. Mature Conidia. Scale Bars = 20  $\mu\text{m}$ .**

*Melanographium calami* (Fig. A, B and C) Colonies effuse velvety, dark blackish-brown. Mycelium immersed, composed of branched, septate, smooth thick-walled, pale

brown to brown, 2-4.5  $\mu\text{m}$  wide hyphae. Stromata distinct, partly immersed to erumpent and more or less superficial, pseudoparenchymatous, composed of mostly

isodiametric, brown to dark-brown cells, upto 80  $\mu\text{m}$  wide X 60  $\mu\text{m}$  high (30-80 X 35-60  $\mu\text{m}$ ). Conidiophores originating from the upper, outer cells of the stromata in loose or somewhat dense 80-300  $\mu\text{m}$  wide fascicles, macronematous, mononematous, caespitose, spreading, usually gently flexuous or straight, simple, erect to procumbent, smooth, brown to dark brown, somewhat paler towards the apex up to 6 septate, 100-300  $\mu\text{m}$  long, 5-7  $\mu\text{m}$  wide at the base, 5-8  $\mu\text{m}$  wide towards the apex. Conidiogenous cells terminal, integrated, polyblastic,

indeterminate, sympodial, cylindrical, bearing a number of unthickened, inconspicuous conidial scars. Conidia acrogenous, formed holoblastically at the apex of each conidiophores and from successively produced conidiogenous loci, solitary, dry, unicellular, smooth, thick-walled, very strongly curved giving a more or less horse-shoe aspect, brown to dark brown, rarely with a hyaline longitudinal slit, 16-25  $\mu\text{m}$  in diameter, 10-13  $\mu\text{m}$  wide at the broadest central part.



**Fig. A-C. *Melanographium calami*. Fig. A. Stroma, Conidiophore fascicle and Conidia; Fig. B. Conidia; Fig. C. Portion of Stroma and Conidiophores. Scale Bars = 10  $\mu\text{m}$ .**

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