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# Drechslera rostrata a new mycoparasite of Syncephalastrum racemosum

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*Drechslera rostrata* is reported here as a new mycoparasite of *Syncephalastrum racemosum*.

Destructive mycoparasite activity of *Drechslera rostrata*, a seed-borne pathogen of *Eleusine coracana*, was observed against a common seed contaminant *Syncephalastrum racemosum*. The interfungal antagonistic behaviour was studied on nutrient agar in dual cultures. In the designed experiment the antagonist *D. rostrata* attacked the host fungus by direct penetration, coiling and ultimately caused lysis of the hyphae. *D. rostrata* is reported here as a new mycoparasite on *S. racemosum*.

*Drechslera rostrata* was encountered as a seed-borne pathogen causing severe seedling blight of *Eleusine coracana*. Many recent reports of interfungal interactions between pathogenic and non-pathogenic organisms on the surface of leaves and seeds have a great promise in disease assessment and successful substrate colonization of the pathogen (Van den H e u v e l 1970; Mc B r i d e 1971; P a c e, C a m p b e l l 1974; G u p t a et al. 1979; S h a f i e, W e b s t e r 1979). Depending on the nutritional requirements three types of relationships such a mutualistic, neutralistic and antagonistic, have been characterized among interacting fungi (B a r n e t t, B i n d e r 1973). The present piece of work presents the results of mycoparasitic activities of *Drechslera rostrata* against a phycomycetous fungus *Syncephalastrum racemosum* in plate cultures.

Seed-borne fungi of *Eleusine coracana* were screened on potato dextrose agar medium. *D. rostrata* was found to be a dominant fungus on the seeds. This observation prompted the authors to assess the antagonistic activity of *D. rostrata* against other seed-borne mycoflora. *D. rostrata* was observed to attack frequently the hyphae of *S. racemosum*. The detailed study on the colony interaction and hyphal interference was performed following the modified method of Skidmore and Dickinson (1976).

A close observation of the colony interaction revealed that the antagonist *D. rostrata* overgrow the colony of *S. racemosum*. On the basis of the key proposed by Skidmore, Dickinson (1976), the present interaction falls under grade two i.e. overgrowth by antagonist. As a result of hyphal interaction generally a change in permeability of the antagonised cells was observed. In contact, the antagonised hyphae showed retarded growth as observed by other workers (Ikediugwu, Webster 1970; Skidmore, Dickinson 1976). *D. rostrata* frequently attacked the hyphae of *S. racemosum*. The coiling phenomenon (Fig. 1) was as frequent as penetration of the host hyphae. This observation indicates that the antagonist possessed the enzymatic capability to degrade the host cell wall resulting in direct penetration. In later stages of penetration development of many hyphal strands was noticed where the entire protoplasmic content as well as the cell wall of the host was consumed by the parasite (Fig. 2). In addition to the penetration of the host hyphae, the sporangia and sporangiophores (Figs. 3 - 4) were also attacked more frequently. The infection hyphae were observed to come out of the sporangial head (Fig. 3). This interesting observation provides convincing evidence for the necrotrophic or destructive nature of the mycoparasite *D. rostrata*. Growth of necrotrophic mycoparasites may be of considerable importance in determining the capability of survival or reproduction during unfavourable conditions. Interfungal parasitisism may be affected by several factors in the culture conditions. It appears from the recent reports that the coiling phenomenon may result from thigmotrophic and or chemotrophic response (Dennis, Webster 1971). Wider hyphae are more susceptible and are penetrated by the barrower parasites as shown many workers (Durrell 1906; Upadhyay et al. 1979; Rai et al. 1977; Gupta, Tandon 1976).

Since *D. rostrata* is a seed-borne pathogen, its mycoparasitic behaviour may provide an important additional equipment for longer survival and perennation during adverse conditions. A detailed investigation is still needed.

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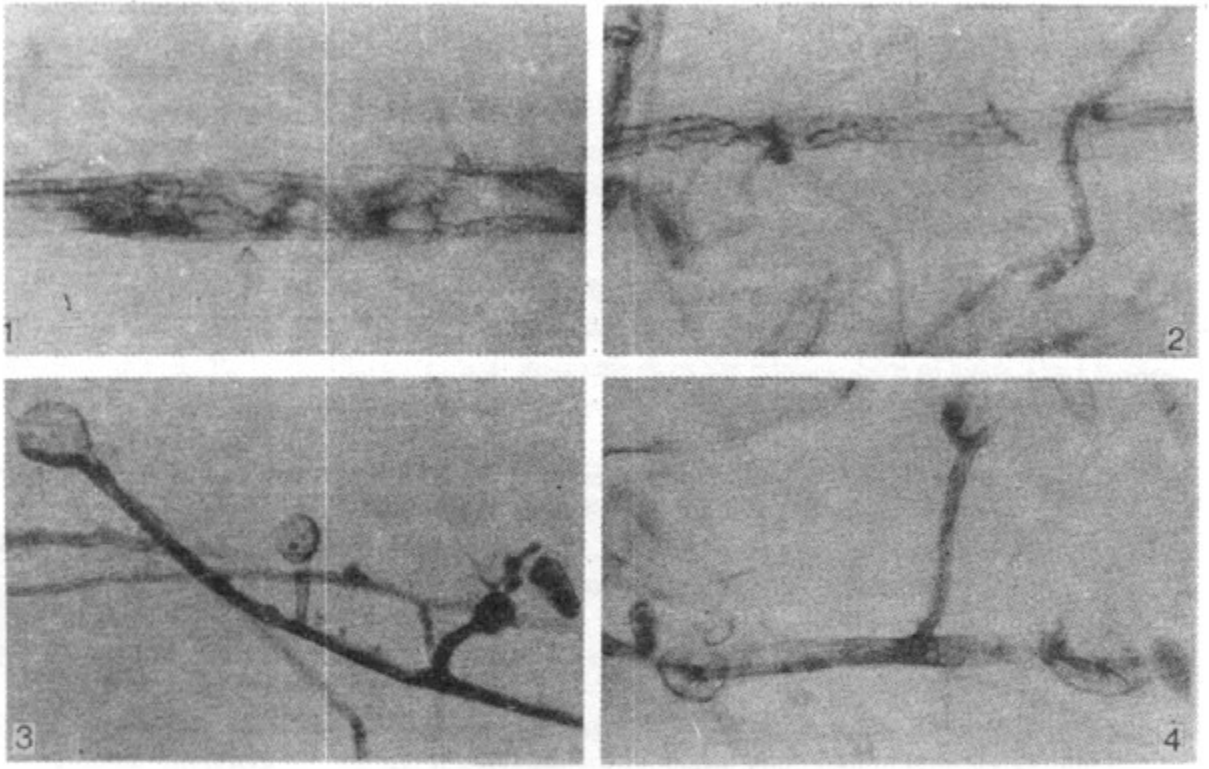


Fig. 1. Coiling of a hypha of *Syncephalastrum racemosum* by the hyphae of *Drechslera rostrata*

Fig. 2. Formation of many parasitic hyphae inside *S. racemosum*

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Fig. 3-4. Penetration of sporangiophores and sporangia of *S. racemosum* by *D. rostrata*

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