

EFFECT OF AN *ALTERNARIA* SP. ON THE DRY WEIGHTS OF *COLLETOTRICHUM GRAMINICOLA**

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At a certain range of concentration of an *Alternaria* sp. culture filtrate in yeast extract liquid medium the dry weights of certain isolates of *Colletotrichum graminicola* (Ces.) Wils. were greatly reduced.

Introduction

During isolation of *Colletotrichum graminicola* (Ces.) Wils., the casual organism for the anthracnose of cereals and grasses, a species of *Alternaria* often grew in potato-dextrose-agar medium and inhibited the growth of the former. In this investigation, an attempt was made to determine if the dry weights of *C. graminicola* were affected by the culture filtrate of the *Alternaria* sp. and thus to get an idea regarding the nature of the cause of inhibition.

Materials and Methods

A culture filtrate of the *Alternaria* sp. was obtained by filtering a one-month old culture of this fungus in yeast extract liquid medium. The culture filtrate was incorporated in a yeast extract liquid medium at different proportions: (1) 15 ml. of filtrate alone, (2) 7 ml. filtrate: 8 ml. medium, (3) 3 ml. filtrate: 12 ml. medium, and (4) 1 ml. filtrate: 14 ml. medium. The diluted media were contained in 125 ml. Erlenmeyer flasks, autoclaved and then the isolates of *C. graminicola* from wheat, orchard grass (isolated by the author) and alfalfa (obtained from American Type Culture Collection) were transferred to the media in these flasks. Dry weights of the mycelia were determined after 15 days.

Results

The *Alternaria* sp. culture filtrate did inhibit *C. graminicola* on the basis of dry weights recorded. The dry weights of the isolates significantly increased as the *Alternaria* sp. culture filtrate in the medium decreased except in the medium with the least amount of culture filtrate in which the dry weights of the wheat and orchard grass isolates were reduced (Table 1).

TABLE 1.—EFFECT OF CULTURE FILTRATE OF AN *Alternaria* SP. ON THE DRY WEIGHTS OF *C. Graminicola*.^a

isolates	Weights (mg.) of mycelium produced in 15 days			
	In culture filtrate		Yeast extract medium ^b	
	15:0 ml.	7:8 ml.	3:12 ml.	1:14 ml.
Alfalfa ..	20	33	54	83
Wheat ..	17	16	33	26
Orchard grass ..	19	37	55	34

a. LSD at 5 per cent level was 3.25 and at 1 per cent level, 4.48.

b. Each value is an average of 3 replications.

Discussion

It was interesting to note that the *Alternaria* species did reduce the dry weights of *C. graminicola* at a certain range of concentration of the culture filtrate. Bell¹ reported that anthracnose of grasses and cereals was of worldwide occurrence and caused economic loss to this crop. Sattar and Hafiz² also reported that this disease did much damage to jawar crops in West Pakistan. It would be of great help in controlling this disease if it were found, by subsequent investigation, that *Alternaria* species also inhibited these growth of the pathogen in the soil. Since this investigation was only a side work of the main research problem, no attempt was made to extend the investigation any further.

From the nature of reduction of the dry weights of the isolates of *C. graminicola* by the *Alternaria* species it might be guessed that some chemical substance was produced by the *Alternaria* species, whose inhibitory effect on the isolates was dependent on the concentration of that chemical substance.

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