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A TOXIC METABOLITE FROM *ALTERNARIA BRASSICICOLA*

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Recently it has been proved decisively that toxin produced by any pathogenic organism plays a significant role in pathogenesis (Scheffer and Pringle, 1961 ; Scheffer and Ullstrup, 1965 ; Scheffer, 1967). Since then several research workers are extensively working on toxins of pathogenic fungi.

Alternaria brassici Cola (Berk) Sacc , the casual agent of leaf-blight of *Brassica oleracea* has been found to produce toxic metabolite which can inhibit root growth and causes necrotic spots on leaves of cauliflower even when it is highly diluted. Our aims of this study are to : (i) verify the ability of fungus to produce toxic compound(s) which is toxic to different plant specieses of *Crucifereae* and can produce the typical disease symptoms, (ii) isolate and characterise the toxin(s) and determine some favourable and unfavourable conditions.

The fungus was grown at about 25°C in a modified Fries No. 3 basal medium supplimented with 0.1% Difco Yeast extract. Filtrates were collected from cultures of various ages, sterilized by filtration through a bacteriological grade sintered glass filter, and tested for toxic action against seedlings and leaves of cauliflower.

Seeds were germinated at 25°C for 24 hours between sheets of moist filter paper. Serial dilutions culture filtrates started from 1 : 10 were made. 5 ml of each dilution was placed in a 60 × 15 mm petridish with five germinated seeds. The assay end point was determined after 48 hours as the maximum dilution which prevented roots from growing 50 mm long. Control seedlings in water were 75 mm or more in length at 48 hours. The most active filtrate found inhibited growth significantly at a 1 : 100 dilution and completely at a 1 : 10 dilution. Filtrates were tested for toxicity against the leaves of cauliflower. The basal ends of cut petioles were placed in filtrates at dilution from 1 : 10 to 1 : 600 and kept at room temperature under artificial light. After 48 hours, symptoms developed on the affected leaves which were similar to those of inoculated plants. The most active filtrates came from cultures of 15—17 days old. The selective effect of culture filtrate was tested against the leaves of other members of *Cruciferae* like cabbage, Turnip, Radish, Mustard, sugar-beet and

spinach. All these above mentioned specieses more or less affected by the filtrate. Where as the members of *Cucurbitaceae* like Gaurd and Cueumber and of *Papilionaceae* like Broad bean and French bean were not affected by the culture filtrate. It revealed that toxic compound is not host specific but specific to family *Cruciferae*.

The isolated toxin compound was soluble in water, methanol and chloroform and insoluble in diethyle ether. The compound is heat stable and dialysable. The toxic activity is lost by alkali treatment. Further work is in progress.

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