HEAD ROT OF CABBAGE CAUSED BY *RHIZOCTONIA SOLANI* KUHN

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CABBAGE (*Brassica oleracea var capitata*) is an important vegetable crop grown round the year in Manipur. A severe head rot was observed during March-April 1982 in the experimental plot at Sangaipat farm of ICAR Research Complex in cabbage Cv Copenhagen Market. Later it was recorded in Pocha's Early Wonder also.

The initial symptoms of the disease start as small circular to irregular water-soaked light brown spots on the outer portion of the head gradually increasing in size and coalescing together covering the major portion of the head. The infected portion becomes soft and gets rotted. The disease spreads to the inner parts of the head and eventually leads to complete rotting. Warm and humid weather favours the development of the disease. If the outer parts of the head are removed, whitish mycelial growth can be easily seen.

The pathogen was isolated on potato dextrose agar medium. It formed white cottony mycelial growth which developed sclerotia after 5–6 days. Sclerotia are pinkish or brownish in colour. The pathogenicity was established by inoculating the healthy cabbage heads with mycelial suspension of the fungus. The pathogen was identified as *Rhizoctonia solani* Kuhn. There is no previous report of this pathogen causing head rot of cabbage. However, it has been reported earlier[1] causing leaf and root rot of cabbage.

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EFFECT OF CULTURE FILTRATE OF *ALTERNARIA PORRI* ON SEED GERMINATION AND SEEDLING VIGOUR OF ONION

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ALTERNARIA PORRI (Ell) Cif causing purple blotch of onion in many parts of the world is known to produce orange, yellow and red metabolites when cultured on different media[1–6]. Earlier, altersolanol-A and altersolanol-B have been isolated from the culture liquids of *A. porri* grown on Brian's medium T and from the mycelium of the same fungus cultured on stone-leek decoction, respectively[6]. But no information is available on their effect on seed germination and seedling vigour of onion. Since this pathogen has been reported to be associated with seeds of onion[7], the metabolites of *A. porri* produced in Czapek's liquid medium were assayed in the present investigation for toxicity in relation to onion seed germination, seedling vigour and for the growth of the same fungus.

The most aggressive isolate (Ap-5)[8] of *A. porri*, isolated from onion var Nasik Red was cultured on Czapek's liquid medium for 14, 10 and 7 days at 25°C in 100 ml conical flasks, each containing 25 ml of the medium (pH 6.0). The uninoculated medium served as control. The culture filtrates obtained after 14, 10 and 7 days of the fungal growth were designated as Cf-1, Cf-2 and Cf-3, respectively; the colours of these three filtrates were dark coffee red, orange red and yellow, respectively.

Seeds of onion cv Nasik Red were soaked for 6 hr in the respective culture filtrates. Four hundred seeds were used for each treatment for testing their germinability and seedling vigour. For assaying the toxicity of the filtrates against growth of the same fungus, the culture filtrates obtained after different periods of incubation were autoclaved (1.045 kg/cm^2 pressure for 20 min) followed by inoculation with *A. porri*. The amount of growth was determined by weighing after 14 days of incubation at 25°C.

Treatment of onion seeds with culture filtrates of *A. porri* caused reduction in seed germination and seedling vigour (table 1). The growth of *A. porri* was almost arrested when cultured in the culture filtrate of the same fungus. The filtrate obtained after 14 days of the fungal growth (Cf-1) was more toxic than those obtained after 10 and 7 days incubations. However,

Table 1 *Effect of culture filtrates of A. porri on seed germination and seedling vigour of onion and growth of the same fungus*

Culture filtrate	Seed germination*		Seedling vigour**		
	Germination (%)	Reduction in germination over control (%)	Weight of seedling (g)	Reduction in weight over control (%)	Average dry weight of fungus (mg)
Cf-1	78.0	18.8	2.7	53.0	6.6
Cf-2	79.5	17.2	2.8	51.8	12.0
Cf-3	85.0	11.5	2.9	49.7	16.0
Control	96.0	–	5.8	–	141.0

* Recorded after 14 days, and based on 400 seeds. ** Recorded after 20 days, and based on 200 seedlings.

there was no appreciable difference in 10 and 14-day-old filtrates with regard to seed germination and seedling vigour.

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MODIFIED C AND QF CHROMOSOME BANDING FOR *ARACHIS* L CHROMOSOMES

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RECENT cytological techniques for linear differentiation of chromosomes have assisted in genome and chromosome characterization in addition to clarifying the nature of heterochromatin. Certain acridine derivatives such as quinacrine and its mustard have been utilized for this purpose by exploiting their DNA binding specificity and fluorescence[1]. Similarly, various methods of denaturation and reannealing of DNA, followed by giemsa staining, have been used for differentiation of heterochromatic regions of chromosomes[2, 3]. These techniques have been very useful in the animal systems, however there have been some limitations with plant systems because of (a) small size and excessive condensation of chromosomes, (b) small amounts of heterochromatin and (c) technical difficulties in obtaining proper linear differentiation. The present paper compares and illustrates the modifications in the quinacrine method and the new giemsa technique that have provided suitable preparations for the detailed study of *Arachis* chromosomes.

Actively growing root tips were pretreated in a saturated solution of monobromonaphthalene for 3 hr at 5°C and then in 1:1:1 modified Carnoy's fluid II (acetic acid, absolute alcohol and chloroform) for an hour before their final fixation in Carnoy's fluid I (1:3, acetic acid and absolute alcohol). The pretreatment with modified Carnoy's fluid with higher concentra-