

EFFECT OF LEAF EXUDATES OF TWO BARLEY  
CULTIVARS ON THE CONIDIAL GERMINATION OF  
*ALTERNARIA ALTERNATA* (Fr.) KEISELER

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INTRODUCTION

In addition to nutrients, leaves of some plants may exude fungistatic substances which may result in inhibition of pathogenic fungal spores and thus bring about susceptibility or resistance in a variety. The effect of leaf exudates of two barley cultivars (K<sub>12</sub> and Agra local) on conidial germination of *Alternaria alternata* (Fr.) Keisler, was studied so as to assess their resistance or susceptibility.

MATERIALS AND METHODS

The leaf exudates of young (uppermost) and mature (lowest) leaves of each cultivar were collected in the morning hours at an interval of one month adopting 'leaf washing technique' (Burri, 1903). The conidial germination of *Alternaria alternata* was examined using these exudates by 'hanging drop method' along with the control. Fifty observations for each trial were made and germination counts recorded after 10 hr. incubation at 28°C ( $\pm 1^\circ\text{C}$ ).

TABLE 1

Percentage germination of conidia of *Alternaria alternata* in leaf exudates of two cultivars of barley, collected at a monthly interval from young and mature leaves

Leaves	K <sub>12</sub> cultivar (Days)				Agra local cultivar (Days)			
	30	60	90	120	30	60	90	120
Young	64.46 $\pm 9.75$	68.07 $\pm 9.67$	71.33 $\pm 2.22$	72.03 $\pm 8.89$	68.24 $\pm 9.89$	70.27 $\pm 9.25$	72.13 $\pm 8.91$	75.81 $\pm 9.96$
Mature	68.43 $\pm 9.96$	72.98 $\pm 9.03$	76.12 $\pm 8.70$	76.89 $\pm 3.32$	73.62 $\pm 9.89$	76.64 $\pm 8.55$	78.47 $\pm 8.37$	79.07 $\pm 7.29$
Mean Control	78.91 $\pm 9.04$							

## RESULTS AND DISCUSSION

The results given in Table I show that between the two host cultivars, the leaf exudates of Agra local indicated the maximum germination. Further, the percentage conidial germination of the pathogen in both the cultivars increased with the age of the plants, being maximum in 120 days old plants. The exudates of mature leaves of both cultivars indicated higher germination than those of young leaves.

The conidial germination varies with the nature of exudates which depends upon the host, its variety and age of the host. The exudates of K<sub>12</sub> cultivar caused more inhibition as compared to Agra local. These results are in conformity with the findings of Kono Akitsma (1960), Chand and Walker (1964), Sharma (1971) and Sharma and Gupta (1978).

The results demonstrate that the exudates of K<sub>12</sub> cultivar inhibit conidial germination of *Alternaria alternata* in comparison to Agra local. Presumably this inhibition is due to secretion of some chemicals which are responsible for inducing resistance in leaves of K<sub>12</sub> cultivar. The work relating to chemical analysis of exudates and their actual role is in progress.

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\*Original not seen, source R.P.P.