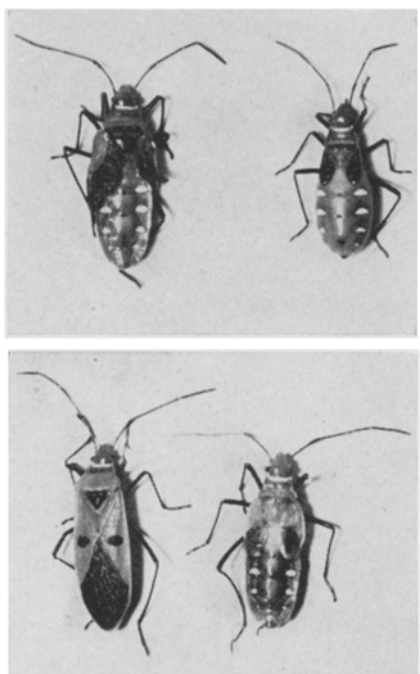
hormone activity. This paper reports the presence of juvenile hormone activity in a new plant called *Iris ensata*.

Material and methods. The plant was collected from Kashmir valley and dried in shade at a temperature of 25–30 °C for 30 days. Pseudobulbs along with roots were soxlet extracted in acetone. On concentration under reduced pressure, the extract yielded 3.7% amber-coloured, semi-solid residue. Similarly the leaf extract yielded 5.6% green residue.

Dysdercus koenigii F. was chosen as test insect and these were reared in 15 × 12 cm glass jars containing water soaked cotton seeds in a 25° ± 1 °C control room programmed for a daily illumination of 14 h. For tests fifth instar nymphs were isolated soon after moulting and given no food except distilled water until used for testing.



A

B

Effect of acetone extract of *Iris ensata* on *Dysdercus koenigii* nymphs. A. Showing normal 5th instar nymph and adultoid. B. Adult and 6th instar nymph.

The test insects were treated with 10, 20, 40 and 80 µg doses of the total extracts of both the roots and leaves separately in acetone. The solution was applied with micro-applicator on mid dorsal region of the nymphs by the method of SAXENA and WILLIAMS[11]. All treatments were replicated. Food and water provided soon after the treatment to induce development.

Results and discussion. 98% of the individuals treated with 10 µg dose of the root extract moulted into adults while some of them appeared with crippled wings failing to cover the abdomen. 50% nymphs moulted to adultoids under the effect of 20 µg while 30% moulted into 6th instar nymphs under the effect of 40 µg. Under the influence of 80 µg, 70% nymphs moulted into sixth instar, 20% died during moulting and 10% adultoids were found. The development pattern in the sixth instar nymphs of treated individuals (Figure) showed resemblance with the pattern found by BOWERS et al.[4] in their experiments with *Pyrrhocoris apterus*. The female adultoids failed to mate with adultoid males but mated with normal males although the egg laying in these cases was also abnormal, as 10–15 eggs were laid by a single female once or twice only. However, these eggs were found to be viable and the development of the nymphs hatched out was also normal. The leaf extract proved to be ineffective, even at higher concentrations.

From the above studies it is evident that *Iris ensata* contains principles with juvenile hormone activity. This plant is promizing for large scale trials and the raw material is available in plenty throughout the Kashmir valley.

Zusammenfassung. Acetonextrakt aus Wurzeln und Rhizomen von *Iris ensata* hemmen die Metamorphose von *Dysdercus koenigii*. Adultoide sind schwach fortpflanzungsfähig.

B.P. SAXENA and J.B. SRIVASTAVA[12]

Regional Research Laboratory, Jammu-Tawi (India), 20 April 1971.

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Influence of Growth-Regulating Substances on *Phymatotrichum omnivorum* (Shear) Dugg

The importance of growth-regulating substances and their response in fungi have been studied by earlier workers, and they found considerable variation in stimulation as well as inhibition[1–3]. LEONIAN and LILY[4], BHARGAVA[5] and LEELAVATHI[6] reported that inhibitory or toxic effect was found at higher concentrations of growth-regulating substances while there was no effect or stimulation at lower concentrations. The present study reports the effect of different concentrations of the three major groups of growth regulators on the vegetative growth of *Phymatotrichum omnivorum*.

The fungus was grown in the dark at 28°C in 125-ml Erlenmeyer flasks containing 50 ml of synthetic medium as a stationary culture[7]. There major groups of growth-regulating substances namely indole acetic (IAA), gibberellic acid (GA) and kinetin (K) was used to study its influence on vegetative growth of the organism. Acetone was used as solvent for the growth regulators and added to the warm sterilized medium. Equal quantity of

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Effect of 3 different growth-regulating substances on growth (Dry weight mg) of *Phymatotrichum omnivorum*

Concentration ppm	15 days			30 days			45 days		
	IAA	GA	K	IAA	GA	K	IAA	GA	K
Blank	85[a]	85	85	221	221	221	638	638	638
Control	87	87	87	224	224	224	624	624	624
1	68	95	131	328	320	555	653	642	655
10	79	97	158	330	355	617	588	612	597
100	98	107	165	400	477	619	595	605	648
1000	0	72	0	112	367	219	137	589	236

[a] Mean of 3 replications. IAA, indole acetic acid; GA, gibberellic acid; K, kinetin.

acetone alone was added to the flasks which served as control. Fungus was grown on the basic medium without any acetone to find out the effect of acetone on growth (referred hereafter as a blank). At various time intervals, growth was measured by determining the dry weight of the mycelium.

The growth in the blank and control was essentially the same. At the 15-day-interval, indole acetic acid and kinetin inhibited the growth completely at 1000 ppm (Table). In the case of gibberellic acid, growth occurred at 1000 ppm but was less than the control. The highest growth occured at 100 ppm in each of the 3 types of growth substances tested. The amount of growth was proportional to the increase in concentration up to 100 ppm.

At the 30-day-interval indole acetic acid at 1000 ppm concentration reduced the growth by 50%. The growth rate was the same between 1 and 10 ppm. A similar trend was noticed in both gibberellic acid and kinetin. The amount of growth was greater with kinetin as compared to giberellic acid.

The growth rate was maximum in all cases at the 45-day-interval. More growth occurred in the control than in any of the growth regulators tested regardless of the concentration. In all 3 cases (IAA, GA, and K) 1 ppm concentration had more stimulatory effect than the other concentrations. This is just the reverse of the results obtained at the 30-day-interval of growth. The growth rate was similar at the 10 and 100 ppm treatments. Maximum growth was obtained with gibberellic acid at 1000 ppm concentration and this was higher than the other substances tested at the same concentration.

The mycelium grown in IAA and GA was more dense and brown in color than the mycelium grown in kinetin. Also the IAA culture filtrate turned from light yellow to reddish brown or black. This may be due to the formation of some phenolic compounds or its derivatives. The pH of the filtrates was acidic after the growth period. The normal medium was neutral at the beginning of the growth period.

Kinetin had a more stimulatory effect on growth of *P. omnivorum* than IAA and GA. At higher concentrations, all of the growth regulators produced pronounced inhibition regardless of the time intervals[8].

Zusammenfassung. Die drei wachstumregulierenden Substanzen Indolessigsäure (IAA), Gibberellinsäure (GA) und Kinetin (K), wurden im Wachstumsversuch mit *Phymatotrichum omnivorum* (Shear) Dugg. miteinander verglichen. Die Resultate zeigen, dass Kinetin das Wachstum dieses Pilzes stärker anregt als Indolessigrenes oder Gibberellinsäure.

M. GUNASEKARAN

Department of Botany, Brigham Young University, Provo (Utah 84601, USA), 28 June 1971.

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PRO EXPERIMENTIS

Appareil d'enregistrement électrique des contractions musculaires de faible amplitude

Nos recherches sur les prostaglandines nous ont amenés à effectuer des dosages de ces substances dans des milieux biologiques où elles existent à des taux très faibles (moins de 3 ng par ml de plasma artériel de chien, par exemple). Pour doser les prostaglandines actives sur les muscles lisses, nous avons mis au point un appareil permettant la mesure de contractions très faibles.

L'enregistrement des contractions musculaires de très petite amplitude nécessite l'utilisation de systèmes à basse inertie, et de procédés permettant la conversion des impulsions mécaniques en signaux électriques, facilement amplifiables. Le système que nous avons élaboré est basé sur les variations d'intensité lumineuse provoquées par le croisement de lames polarisantes.

Le schéma de l'appareil est représenté sur la Figure 1. Un équipage mobile (lame polarisante C solidaire d'une poulie D), soigneusement équilibré autour d'un axe de rotation H, est supporté par la pièce 1. La deuxième lame polarisante B, qui est fixe, est placée en écran devant une photorésistance A, de type LDR. Un faisceau lumineux, émis par une ampoule de 10 volts G, est réfléchi parallèlement à l'axe optique H, par un petit prisme à réflexion