

THE ROLE OF INDOLEACETIC ACID IN THE CONTROL OF LEAF BLADE MOVEMENTS OF *DROSERA CAPENSIS*†

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Excised leaves of *Drosera capensis* respond to stimulation by a piece of cheese placed on the center of the blade by bending both the blade and tentacles in the vicinity of the cheese. The leaf appears to respond by growing since leaf blades were 1.5 to 2.0 mm longer after bending and unbending than unstimulated control leaves.

A role of indoleacetic acid (IAA) in the control of the movements is indicated since the antiauxin p-chlorophenoxyisobutyric acid (PCIB) is capable of inhibiting the response of the leaf to the standard $3 \times 3 \times 1$ mm piece of Edam cheese (27% protein and 25% fat) which was used as a stimulus in all experiments. Leaves which had their cut base placed in 10^{-3} M PCIB showed a clearly diminished response to a cheese stimulus but regained their responsiveness when placed in water for 24 hours.

The auxin transport inhibitor 2,3,5-triodobenzoic acid (TIBA) diminished the response of the leaf to the cheese when it was placed acropetal to the cheese stimulus. When a 10^{-4} M TIBA barrier was present acropetal to the stimulus, the leaf was always observed to bend acropetal to the barrier while reduced bending, and in 30% of the cases no bending was observed beneath the cheese. In controls that lacked the barrier maximum bending was observed the cheese. This data is consistent with the hypothesis that bending of the leaf blade be-

neath the cheese is due to the redistribution of IAA produced in the leaf tip in the stimulated portion of the blade.

IAA applied to the surface of an unstimulated leaf will cause bending only at the site on the leaf where the IAA was applied. However, when 10^{-3} to 10^{-4} IAA is applied to a stimulated leaf acropetal to the cheese stimulus, in addition to the bending at the site of application, an enhanced response was observed beneath the cheese. Greater bending and more rapid bending occurred in response to the greater applied concentrations of IAA. There was no enhancement of response by IAA concentrations of less than 10^{-5} M.

IAA applied to the leaf acropetal to the cheese stimulus always had the same effect. Regardless of the site of application the leaf always bent around the cheese. Additional IAA only enhances the response of the leaf blade to the cheese stimulus. No significant effect of applied IAA on tentacle movement was observed.

Bending of the leaf blade in *Drosera capensis* during prey capture is likely to be due to differential growth caused by a redistribution of IAA produced at the leaf apex and transported to the region beneath the prey.

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