

chen Reizen Spektralfarbbeworzungen. Drei theoretische Modelle sind vorgeschlagen worden, die diese Bevorzugungen erklären sollen. Die Voraussagen dieser Modelle bezüglich der Bevorzugung von Mischfarben wurden experimentell geprüft und als nicht zutreffend befunden. Vielmehr legen die Ergebnisse die Vermutung nahe, dass die Bevorzugung nicht, wie bisher angenommen, auf einem afferenten sensorischen Filtermechanismus beruht,

sondern auf einen mehr zentralen, postperzeptualen Prozess zurückzuführen ist.

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Auxin Transport under Saline Growth Conditions

The problem of increased salinity of the growth media and its effect on plant growth has been attacked from various physiological aspects. Though the effect of salinity on root cytokinins has recently been studied^{1,2}, its influence on auxin physiology has remained unexplored. The present report on indoleacetic acid-2-¹⁴C (IAA) transport and coleoptile growth, therefore, constitutes part of an investigation being pursued from this aspect.

Seeds of *Zea mays* L. (cv. Orla-266) were thoroughly washed and soaked for 5 h in 1. tap water, 2. NaCl and 3. Na₂SO₄ solutions (each 0.4% w/v in tap water) and planted on paper pads ('cellucotton'), saturated with the respective solutions, in three separate plastic boxes. The seedlings were raised in complete darkness for 91 h except between 48 and 52 h when they were exposed to red light to suppress mesocotyl growth. Transport determinations were made with 10 mm coleoptile segments taken 1–2 mm below the tip and the leaf was pushed out.

A transport assembly consisted of 10 mm segments tap water (control), NaCl and Na₂SO₄ grown seedlings supplied with donor blocks containing 0.2 mg/l ¹⁴C-IAA (sp. act. 48.5 mCi/mM, Amersham) on the apical or basal cut ends and the other end (receiver) placed on (basipetal) or covered with (acropetal) plain 1.5% agar blocks. The assemblies were always kept in normal vertical orientation.

Two assembly components were pooled for each measurement and the experiment was repeated 3 times. At the end of 90 min transport period, the 10 mm segments were divided into 2 parts, i.e. apical or basal 8.0 mm tissue and the remaining 2 mm tissues. The radioactivity in donor, 8.0 mm segment and the receiver together with the adjacent basal (basipetal) or apical (acropetal) tissues were separately assayed by liquid scintillation counting³. The temperature throughout was maintained at 25 ± 1°C and only green safe-light⁴ was used during manipulations and transport determinations. Statistical evaluation of the data was made by Student's *t*-test.

The seedlings raised under saline conditions were comparatively smaller and had shorter coleoptiles than the control (Table I). The differences in the coleoptile lengths are statistically significant (*p* 0.001). Thus chloride salinity reduced coleoptile length more than the sulfate salinity.

From Table II it becomes evident that salinity treatments did not materially influence the percentage of absorbed auxin translocated. But NaCl treatment, compared with control, did reduce the percentage absorbed from the donor (*p* 0.02). However, no difference between chloride and sulfate salinity is ascertainable from these data. Similarly the basipolarity of the auxin transport was also not affected.

It is, therefore, concluded that even though the coleoptile length was reduced by salinity treatments, no effect on auxin transport and its polarity could be demonstrated under the present experimental conditions. Further studies on the estimation of diffusible auxin and its relation to the reduced supply of cytokinins are in progress.

Zusammenfassung. Ein erhöhter Salzgehalt des Substrats hemmt das Koleoptilen-Längenwachstum von *Zea mays*, ohne indessen einen Einfluss auf den Auxintransport und dessen Polarität auszuüben.

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Table I. Effect of salinity treatment on the coleoptile length of *Zea mays* L.

Treatments	Control	NaCl	Na ₂ SO ₄
Coleoptile length (mm)	22.4	12.1	15.2
Standard error	± 0.91	± 0.37	± 0.54

Table II. Transport of indoleacetic acid-2-¹⁴C through *Zea mays* L. coleoptiles raised under saline conditions

Treatment	Basipetal	Acropetal
IAA absorbed (% of applied)		
Control	20.27	9.82
NaCl	16.04	7.01
Na ₂ SO ₄	18.01	7.24
IAA translocated (% of absorbed)		
Control	36.46	3.07
NaCl	33.91	3.25
Na ₂ SO ₄	33.30	3.75

Transport time 90 min.

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