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EFFECT OF AUXIN AND ETHYLENE ON THE ROOTING OF MUNG BEAN CUTTINGS

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Vegetative propagation by cuttings has become important not only in crop plants but also in foliage plants and cut flower industry. The two hormones mainly important in regulating the rooting of cuttings are auxin and ethylene.

In some other growth processes promoted by both ethylene and auxin, a striking observation has been the highly synergistic effect produced when both regulators are given together. Such an effect has been reported for root development in mung bean cuttings,[1] where root number and root elongation are both enhanced synergistically in the presence of 10 ppm IAA and 10 ppm Ethrel (ethylene releasing agent). The purpose of the present study was to re-investigate the above claim.

Experiments were carried out with 4-5 day old mung bean seedling cuttings held in treatment solutions at ambient temperature under artificial light giving a photoperiod of 16 h light and 8 h dark. Two main aspects were investigated: (*a*) Effect on rooting of Auxin and Ethylene given singly and in combinations; (*b*) Use of Co^{2+} ion to investigate if the auxin effects were due to "auxin induced ethylene".

SECTION D

Major conclusions from this study were:

(*a*) High auxin concentrations (10 ppm) strongly promote root initiation but strongly inhibit root elongation while low auxin concentrations (0.001-0.01 ppm) produce reverse effects.

(*b*) Ethrel concentrations higher than 1 ppm were highly toxic to these seedling cuttings. Lower ethrel concentrations were inhibitory to root elongation. Root initiation was slightly promoted by low ehtrel concentration (0.001-0.01 ppm) but inhibited at concentrations higher than this.

(*c*) In contradiction to Krishnamoorthy's result ethrel and auxin did not produce any synergistic effect at any concentrations both for root initiation and root elongation.

(*d*) Use of Co^{2+} ion (10^{-5}M) indicated that the auxin effects were not due to "auxin induced ethylene".

Reference

1. Krishnamoorthy, H. N. (1970). *Plant and Cell Physiology*, **11** (979-982).