

EFFECT OF ROOT TEMPERATURE AND Ca LEVEL IN THE
NUTRIENT SOLUTION ON THE GROWTH OF CUCUMBER UNDER
SALINE CONDITION

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ABSTRACT:

The response of cucumber plants to an increase in root temperature and Ca level in the nutrient solution under saline conditions was examined. Plants were grown at two salinity levels (2.5 and 8.5 mS cm⁻¹) and at two root temperatures (unheated, and heated up to 27°C). The main effect on plant growth was due to high salinity. Heating the nutrient solution continuously at 27±1°C had little effect on plant growth and yield. Moreover, it did not influence the plant's response to saline conditions. Increasing Ca concentration in the recirculating solution did not influence the growth of cucumber at high salinity. However, the Na level in the leaves was reduced. Lack of a significant effect on plant growth could be attributed to the relatively high Na/Ca ratio (30.29 and 13.55) used in this study compared with other reports.

INTRODUCTION:

Reduction of plant growth under high salinity levels is correlated to the reduction of water uptake. Increasing root temperature is associated with production of large leaves, increasing photosynthesis per unit leaf area, increased water uptake and increased translocation of the nutrient (Graves 1983). Water uptake may be influenced by the changes in root structure that take place when the recirculating solution is heated. Moorby and Graves (1980), found a reduction in the