

## **Changes in accumulation of essential macronutrients during vegetative growth of rapeseed exposed to NaCl**

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Stress caused by increased salt concentrations affects plant metabolism and the final outcome of plant production in many ways. The excess of salts has an osmotic effect, thus reducing the amount of water which plants can take up by their root system. Increased salt concentrations may lead to disorders in the mineral nutrition of plants.

To assess the extent to which the steady presence of sodium chloride in relatively low concentrations (0.1- 1.2 g NaCl L<sup>-1</sup>) affects plants, an experiment was set with rapeseed (*Brassica napus* L, Brassicaceae), in semi-controlled conditions of a greenhouse. Plants were grown in water cultures, on strength Hoagland nutrient solution, to which NaCl was added 2 weeks after planting. Plant growth and accumulation of N, P, K, Ca and Na and their distribution between leaves, stems and roots were analyzed 1 and 2 months following the beginning of the treatment. Concentration of Na increased in all plant organs over the time, and it was related to its concentration in the nutrient solution. Potassium concentration declined in stems and roots after one month; this decrease was more pronounced over time and with the increase in NaCl concentration in the nutrient solution. Concentration of P declined significantly in roots in the presence of

1.2 g NaCl L<sup>-1</sup>. Calcium concentration declined in the presence of NaCl over time in all tissues. Concentration of N slightly increased in leaves during the first month, but its concentration declined in all tissues after two months, with respect to the control. Overall, NaCl affected to a higher extent concentrations of K and Ca than N and P. Even though applied concentrations of NaCl were relative low, they induced significant changes in accumulation and distribution of examined elements.