

and nutrient content, which can support the growth of a wider range of |CCs. Understanding soil properties is necessary for selecting the appropriate cover crops to maximize benefits in improving soil quality and plant health.

Iodine biofortification of cabbage plants cultivating in hydroponic system

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Iodine is an essential trace element in the human diet being involved in the synthesis of thyroid hormones. The recommended daily intake for iodine ranges between 90 and 270 µg; 90 µg – young children (1–8 years), 120 µg – older children (9–13 years), 150 µg – adults, and 220–270 µg pregnant and lactating woman. Iodine deficiency affects ca. 2.2 billion people worldwide, therefore it is an important challenge to find a plant-based source of iodine, which would provide the recommended dietary allowance.

In this work iodine biofortification of cabbage was investigated cultivating plants in hydroponic system containing iodine in concentration of 0.01-1.0 mg/L as potassium iodide or potassium iodate. During the experiment plant physiological properties (chlorophyll content, photosynthetic efficiency), biomass production, concentration changes of iodine- as well selected essential elements were investigated.

Results showed that iodine addition had no effect on the photosynthetic efficiency and chlorophyll content. Biomass production was stimulated by the iodide treatment in all dosages, while applying iodate this phenomenon was observed only in low concentrations, above 0.5 mg /L the yield was reduced. Increasing iodine concentrations in the nutrient solutions resulted in higher iodine content in all plant parts, the presence of iodide caused 2-7 times higher accumulation compared with the iodate treatment and it was established that and highest accumulation was observed in the roots, lowest in the edible plant tissues. Type of the iodine treatment had different impact on the essential element transport, applying iodide in the nutrient solution the concentration of all elements was decreased, while adding 1.0 mg/L iodate the transport was stimulated compared with the control plants.
