The *Lepidium sativum* L. (Brassicaceae) recovery ability post salinity stress exposure

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1 ABSTRACT

Salinity causes a major threat on the agriculture nowadays and can alter the global vegetal production's map. The present work focuses on the physiological behaviour of *Lepidium sativum* L. (Garden cress) under salt stress condition and its post-stress recovery. In order to better understand the effects of salinity on the growth of plants, the recovery experiments were conducted in *L. sativum* by measuring physiological parameters on seedlings prior to salt (NaCl) treatment and after culturing them on a salt-free nutrient solution. This study indicates that removal of NaCl from the media results in resumption of growth activity. The increase in leaf biomass exceeds the roots. The results indicated a significant increase in protein, sugar and proline contents that is equivalent to the ones in untreated controls. In addition, the high endogenous accumulation of Na^+ ion, decreased significantly after NaCl suppression, especially in roots. Salt ions provoked an increase in the NH_4^+ concentrations in the leaves and roots parallel to high increase of proteolytic enzymes activities involved in the protein degradation. This was in accordance with the pronounced decrease of dry weight by salt in leaves and roots. Also, protease activity decreased during the recovering time. On the basis of these results, *L. sativum* specie can be able to dilute the effects of NaCl toxicity in cellular compartment during the recovering period. An important conclusion of this work is that a transient contamination of the culture medium by salinity or pollutants is not necessarily followed by a significant depreciation in the product yield and tolerance.