

# Defoliation affects chemical defenses in all plant parts of rye seedlings

Collantes, Hugo G.

Gianoli, Ernesto

Niemeyer, Hermann M.

The effect of defoliation and consecutive defoliation (condefoliation) of rye seedlings on the allocation patterns of biomass and hydroxamic acids (Hx) was evaluated five days after treatment. Growth of condefoliated seedlings was lower than that of defoliated and nondefoliated ones. Concentration of Hx decreased in shoots of condefoliated seedlings compared to nondefoliated ones, while concentration of Hx in root exudates increased. Allocation of Hx to roots and root exudates increased at the expense of allocation to the shoots in condefoliated seedlings. The ratio of Hx-aglucone to Hx-glucoside was higher in shoots of defoliated and condefoliated seedlings. The decrease in quantity of defense in shoots was accompanied by an increase in its quality, given that aglucones are more toxic than glucosides. The increase in concentration of Hx - an allelopathic compound also involved in mineral uptake by roots - in root exudates of condefoliated seedlings was suggested to lead to an advantag