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→ Resumo Ar

Peroxidase Activity along the Main Root Apex of Aluminum Tolerant and Sensitive Maize Inbred Lines

Aluminum is a major factor limiting crop yield in acid soils. It has been reported to influence the expression of peroxidase isoenzymes in several plant systems, with the root apex being the site of the primary Al lesion. The objective of this work was to determine the effect of Al on peroxidase activity in the root apex of maize inbred lines contrasting in their tolerance to this mineral. Seeds of Cateto237 (tolerant) and L36 (sensitive) were pre-germinated for 7 days and then transferred to nutrient solution. After 5 days, half of the seedlings were transferred to the same nutrient solution containing 250 μ M Al for 80 minutes and the other half kept as control. Peroxidase activity and zymogram of its isoenzymes were performed along the first 20 mm of the main root apex, segmented at 2 mm intervals. The highest total soluble protein contents were observed in the first 2 mm of the root apex in both inbred lines, independent of Al treatment. Aluminum significantly decreased peroxidase activity in the first 6 mm of the root apex in the sensitive inbred line, but had no effect on the activity of segments located above this zone.

Aluminum treatment did not affect peroxidase activity in any root segment from the tolerant inbred line. A constitutive peroxidase isoenzyme with pI 4.79 was observed in the tolerant but not in the sensitive genotype.