

## Assessment of root responses to toxic aluminum as a tool for genetic breeding of *Brachiaria brizantha* X *B. decumbens* hybrids

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Most Brazilian grazing areas have soil acidity and toxic aluminum levels, causing severe restriction in plant growth and, consequently, considerable losses in forage yield. *Brachiaria brizantha* and several of its hybrids (e.g. crossings with *B. decumbens*) became the pasture of choice for raising cattle, because of their high biomass production and rapid adaptability to adverse conditions. As a result, recent genetic improvement programs of the species and its hybrids are emphasizing strategies to ameliorate their tolerance to aluminum toxicity. The objectives of this work were to evaluate contrasting *Brachiaria brizantha* X *B. decumbens* hybrids under different levels of aluminum toxicity in a controlled environment, in order to select root indicators of tolerance to toxic aluminum. The hybrids were in vitro micropropagated and the obtained seedlings acclimated and grown in Hoagland nutrient solution with the following aluminum levels: 0, 4, 5 and 6mg /L Al<sup>3+</sup> at pH 4, and a control in pH 5,5-6,5. After 30 days, the following root parameters were evaluated: length, fresh weight and dry weight. The contents of mineral elements in root samples were analyzed by ICP-AES, and the level of phosphorus was determined with a spectrophotometer. Aluminum toxicity caused reduction in root length and volume and also decreased the absorption of iron and phosphorus. The genotypes showed differential response to levels of toxic aluminum, thus suggesting the possibility of selection for tolerance / resistance to this abiotic stress. In general, the hybrids with improved tolerance tended to show lower growth rate. Of all the parameters studied, the root length appeared to be the most discriminating factor.