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1. Effects of Toxic Levels of Aluminum and Chromium On the Performance of Sugarcane Genotypes. . . . 189-2 See more from this Divisi**on**: ASA Secti**on**: Agr**on**omic Producti**on** Systems See more from this Sessi**on**: Overcoming Producti**on** Barriers: I Tuesday, October 23, 2012: 9:00 AM . . .

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Tuesday, October 23, 2012: 9:00 AM
Duke Energy Convention Center, Room 232, Level 2

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ABSTRACT WITHDRAWN

New sugarcane varieties with higher yields are continuously developed and tested, and many breeding programs are targeted to improve resistance to abiotic stresses such as metal toxicity. Aluminum and chromium are particularly important in Brazil, given their widespread occurrence in cultivated areas. Therefore, the objective of this study was to evaluate three sugarcane genotypes regarding aluminum and chromium resistance. In vitro micropropagated seedlings of IAC 86-2480, IAC-EGL and São Jos&#65533; sugarcane genotypes were acclimated for 15 days in nutrient solution and subsequently exposed to one of the following treatments: C: Control, pH 5.7, I: P- and Fe-free medium, pH 4.0, AL: I + Al^{+3} (6.0 mg L^{-1}), and CR: I + Cr(III) (5.0 mg L^{-1}). The experimental design was completely randomized with four replications, using a factorial scheme with three genotypes and four treatments. After 30 days, plants were harvested for the evaluations. Regarding main their effects, the genotypes differed in the relative root elongation (RRE) and chlorophyll content. São Jos&#65533; showed the highest RRE, although this variable did not interfere on length and weight of roots. IAC-EGL exhibited the lowest RRE, but also without effecting significant alterations in weight and length of roots. IAC-EGL had the highest chlorophyll content, followed by IAC 86-2480 and São Jos&#65533;. Main effects of treatments were significant for all variables, excepting stem weight and transpiration rate. CR was the most detrimental treatment. AL and I were similarly detrimental only for the growth index, RRE and chlorophyll content. The statistical analysis revealed that the interaction between genotypes and treatments was not significant for all the variables tested. In conclusion, the genotypes did not differ regarding aluminum or chromium resistance, and other genotypes should be evaluated as further attempts to detect sensible contrasts. Overall, the aluminum treatment did not affect plants, while chromium was detrimental to their development.
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