

## **Preliminary Results *In Vitro* Selection for Tolerance to Chloride Excess in Avocado**

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**Abstract.** Avocado is one of the more sensitive fruit trees to high concentrations of chlorides and sometimes does not tolerate soil conductivity above 2 mmhos. This results in a reduction in production of up to 10%. With the use of *in vitro* embryo selection and taking advantage of the naturally existing genetic variation, it has been possible to identify valuable genotypes in a relatively short time. The purpose of the work was to determine if the method of *in vitro* culture of mature avocado embryos could be an acceptable option for the evaluation and selection of individuals tolerant to excess chlorides.

Mature embryos of creole avocado (races Mexicana and Antillana) were planted in a basic Murashige and Skoog medium, supplemented with NaCl, CaCl<sub>2</sub>, and a mixture of both salts, added at concentrations from 0.1 to 1.0% at 0.1% intervals. Data were taken to quantify germination under each treatment after 365 days incubation. On surviving plants,  $\Psi_{\pi}$ ,  $\Psi_w$ , and  $\Psi_p$  were determined for stems and roots. Embryos of the race Mexicana performed as follows. Stems of plantlets developed on low concentrations (0.1% to 0.3%) of NaCl showed a drastic reduction in  $\Psi_w$  and  $\Psi_{\pi}$  upon passing from 0.1% to 0.3% salt causing a slight increase in  $\Psi_p$  which seems to indicate some osmotic adjustment. In the root,  $\Psi_w$  and  $\Psi_{\pi}$  increased upon passing from 0.1% to 0.3% concentration of CaCl<sub>2</sub>. Only on 0.4% and 0.8% were plantlets obtained. In these, stems showed inconsistent  $\Psi_w$  in contrast with  $\Psi_{\pi}$ . From 0.6% salt and greater, the reduction was still larger and  $\Psi_p$  increased indicating some osmotic adjustment in response to high levels of salt. Embryos of the race Antillana in NaCl developed into plantlets on 0.1% to 0.5% salt except at 0.3% where no plantlets were obtained. In all cases, stems did not show any trends with respect to  $\Psi_m$ ,  $\Psi_w$ , or  $\Psi_p$ . For roots, 0.7% salt gave some response, and  $\Psi_w$  was reduced with concentrations of NaCl<sub>2</sub> decreased drastically at 0.5% concentration and  $\Psi_p$  increased. With respect to CaCl<sub>2</sub>, plantlets were obtained on all six concentrations. In stems,  $\Psi_w$  was reduced as the level of salt increased;  $\Psi_{\pi}$  in both stems and roots decreased with increased salt concentration. It can be concluded that it is possible to consider *in vitro* embryo culture as a viable and fast method for selection of salt tolerance in avocado.