

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, CaCl₂, 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, Ψ_{π} , Ψ_w , and Ψ_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 Ψ_w and Ψ_{π} upon passing from 0.1% to 0.3% salt causing a slight increase in Ψ_p which seems to indicate some osmotic adjustment. In the root, Ψ_w and Ψ_{π} increased upon passing from 0.1% to 0.3% concentration of CaCl₂. Only on 0.4% and 0.8% were plantlets obtained. In these, stems showed inconsistent Ψ_w in contrast with Ψ_{π} . From 0.6% salt and greater, the reduction was still larger and Ψ_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 Ψ_m , Ψ_w , or Ψ_p . For roots, 0.7% salt gave some response, and Ψ_w was reduced with concentrations of NaCl₂ decreased drastically at 0.5% concentration and Ψ_p increased. With respect to CaCl₂, plantlets were obtained on all six concentrations. In stems, Ψ_w was reduced as the level of salt increased; Ψ_{π} 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.