

Effect of IBA, Kinetin, and Benzylaminopurine on the Germination, Shoot Development, and Root Formation in Avocado Embryos Cultivated *in vitro*

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Abstract. Genetic improvement programs for finding avocado genotypes that are resistant or tolerant to adverse conditions of cultivation usually take several years, and on occasion, the expected results are not obtained. The *in vitro* cultivation of embryos is an alternative that allows us to select genotypes with outstanding characteristics in a shorter period of time. The objective of this work was to establish the hormonal requirements for the rapid obtainment of plantlets from mature embryos of Creole avocados through *in vitro* cultivation in a chemically-defined medium.

Mature embryos from creole avocado seeds (*Persea americana* Mill.) of Mexican race were cultured *in vitro* on Murashige and Skoog (MS) medium complemented with 2.0 mg/L glycine, 100 mg/L myoinositol, 5 mg/L pyridoxine-HCl, 1.0 mg/L thiamine-HCl, 5.0 mg/L nicotinic acid, 30.0 g/L sucrose, and 7.0 g/L bacto agar. The pH of MS medium was adjusted to 5.7 with 0.1 N of NaOH or HCl. The embryos were excised with a small piece of cotyledon attached and inoculated with five levels of indole-3-butyric acid (IBA) alone or in combination with five levels of kinetin (K) or benzylaminopurine (BA). The levels used were: 0.01, 0.1, 0.3, 1.0, and 3.0 mg/L. The explants were cultured at 25±2C in darkness for 21 days and subsequently under continuous light (3000 lux cool white fluorescent irradiance). Thirty-five days after inoculation, the percentage of germination and the number of shoots and roots increased for the explants were placed in a basic medium with 0.3 mg/L of IBA and 1.0 mg/L of K added; bud growth was better in the treatment with 1.0 mg/L of K and 1.0 mg/L of IBA. The length of the root was stimulated with the combinations of 0.01 and 0.3 mg/L of K with 0.3 and 1.0 mg/L of IBA. Negative effects on shoot growth were observed when benzylaminopurine was added.