Strategic Procedure to Improve the Acclimation of Cassava (Manihot esculenta) in vitro Plants through Variation of Source and Quantity of Carbon

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This project was executed in order to improve the acclimation of cassava vitro plants by applying CO2 to the explants during their in vitro period, so these can establish an autotrophic system and have no problems developing when they reach the greenhouse, thus assuring a lower mortality rate during acclimation. Work was conducted in two stages. The first stage measured the effects of CO2 concentrations (0, 1500 y 3000 ppm), the presence of sucrose in the culture medium and the environmental conditions (open/closed) of the test tubes. The second stage assessed exposure times (0, 1, 2 and 3 weeks) under the conditions defined above to achieve proper acclimation. The results of the first stage showed that a greater dry weight (9.0 mg) is obtained when the CO2 concentration is 3000 ppm, sucrose is present and an open environment is used. During the second stage, a 3-week treatment resulted in the highest dry weight (9.0 mg) and a greater survival rate of 72%. The main conclusion was that explants adapted more rapidly to an ex vitro environment when grown in an environment with sucrose opened to the atmosphere and exposed to 3000 ppm of CO2 for three weeks. Research suggests the use of this technique by the laboratories producing and marketing in vitro plants, so those who purchase their products will obtain stronger explants, with higher survival rates during acclimation.

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