In vitro Establishment and Acclimatization of Coffee (Coffea arabica) in Three Costa Rican Traditional Varieties and in a Promising Variety Resistant to Leaf Rust (Hemileia vastatrix)

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Coffee (Coffea arabica) constitutes in Costa Rica and in the canton of Acosta, a fundamental part of its economy, due to this, there is interest in varieties with high productivity and resistant to diseases. The conventional coffee propagation technique has low seed germination and, because of the presence of diseases, such as leaf rust (Hemileia vastatrix), production decreases. In view of the foregoing, the objective of this project was the in vitro establishment and acclimatization of three Costa Rican varieties of coffee as well as a promising variety, resistant to leaf rust, in order to help coffee growers in this sector. The in vitro establishment of the Venecia, Caturra and Catuai varieties was initiated by inoculating isolated embryos of coffee seeds in the MS 1/2 culture medium supplemented with 0.2 mg / L of gibberellic acid as a growth regulator. For the in vitro establishment of the Obata variety, resistant to leaf rust, two phytohormones, gibberellic acid and abscisic acid were used, different concentrations were tested (0.2, 2, and 12 mg / L). The acclimatization was carried out using two substrates: Sand + Soil with Organic Matter (1: 2) and Sand (100%). The effectiveness of the protocol in the in vitro response was evaluated, where the most effective treatment was with the Obata variety with 90% germination. The results suggest that this variety could be used with the in vitro establishment protocol; since it has been studied that it is resistant to leaf rust with high productivity.

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