Optimization of in vitro establishment of grapevine varieties for fast micropropagation

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Abstract

Micropropagation is an important alternative to conventional methods of plant propagation. The objective of this study was to optimize a protocol for *in vitro* micropropagation of selected grapevine hybrids (H19 and H20) that are included in our breeding program. For the sprouting initiation experiment, nodal cuttings with only one axillary bud from two hybrids were separated, disinfected, and cultivated in 50% Murashige Skoog nutrient medium (½ MS) and Woody Plant Medium (WPM), adding 4.4 µM benzyladenine (BA) in both mediums. To optimize root induction, the sprouts obtained were cultivated in ½ MS and WPM, testing doses of 2, 4 and 8 µM Indole Acetic Acid (IAA) respectively. According to the results, the highest percentage of sprouted buds was obtained in ½ MS + 4.4 µM BA for H19 and H20 (79 and 82%, respectively) at 14 days. At 28 days, the percentage was lower in all of cases. Regarding the rooted sprouts, the highest percentage obtained was 52% in the WPM medium for H19 and 46% in the WPM + 4µM IAA medium for H20 at 14 days. At 28 days, however, the highest percentage of rooted shoots was in ½ MS + 2µM AIA medium for H19 and H20 (89 and 93%, respectively). In conclusion, the best way to micropropagate these hybrids in a short period of time is ½ MS + 4.4 µM BA and WPM for H19, and ½ MS + 4.4µM BA and WPM + 4µM IAA for H20.

Keywords: micropropagation, rooting, *in vitro* culture, IAA, BA.