Direct somatic embryogenesis capacity of decaffeinated *Coffea arabica* L. genotypes

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Introduction

The coffee breeding program of the Instituto Agronômico has plants of genotypes under selection with low caffeine content. This study aimed at the vegetative multiplication of *Coffea arabica* genotypes in F3 generation of selection by direct somatic embryogenesis.

Materials/Methods

Leaf explants of 15 genotypes of *C. arabica* were subjected to direct somatic embryogenesis. Culture medium with ½ the concentration of MS salts [1], 20 g/L of sucrose, 10 µM of 2-Isopentenyladenine and 5 g/L of agar or 2 g/L of Phytagel [2] was used. Each treatment had 10 repetitions.

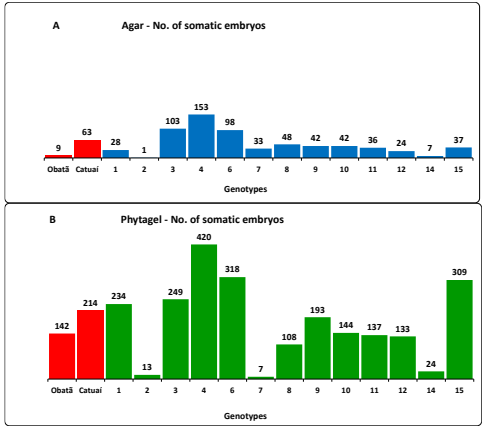

Figure 2 – Somatic embryos formed in explants of genotypes of *C. arabica* in direct somatic embryogenesis induction medium, with agar (A) and Phytagel (B) at 25 ºC and in absence of light.

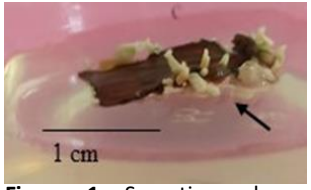

Figure 1: Somatic embryos formed via direct somatic embryogenesis.

Results/Discussion

The explants of all genotypes form somatic embryos by direct pathway (Figure 1).

However, in general, the number of embryos was higher for the explants that were in the medium solidified with Phytagel compared to the one with agar (Figure 2)

On the other hand, genotypes 2, 7 and 14 had a lower number of somatic embryos in the presence of agar and Phytagel.

Conclusion/Perspectives

All genotypes showed direct somatic embryogenesis capacity. The solidification agents Agar and Phytagel affected the formation of somatic embryos by the direct route. In addition, it is also noteworthy that agar and Phytagel alter the osmotic potential of the culture medium, which indicates that this factor participates in the control of the occurrence of direct somatic embryogenesis of *C. arabica.*

References:

1. Murashige & Skoog. Physiology Plantarum, v. 15, p. 473-497, 1962. doi:org/10.1111/j.1399-3054.1962.tb08052.x. 2. Alves, et al. Ciência Rural, v. 48, p. 1-5, 2018. http://dx.doi.org/10.1590/0103-8478cr20180001