



Genetic diversity among coffee tree progenies Big Coffee VL based on growth traits and production

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Genet. Mol. Res. 15 (4): gmr15049066

Received August 9, 2016

Accepted September 20, 2016

Published November 21, 2016

DOI <http://dx.doi.org/10.4238/gmr15049066>

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ABSTRACT. In a coffee plantation of a coffee ‘Acaia’ cultivar (*Coffea arabica*), on the Midwest of Minas Gerais in Capitólio city, a different kind of coffee tree was found (1989), possibly due to a mutation. It presented larger leaves and grains than those of conventional coffee trees and was named as “Big Coffee VL.” The aim of this study was to estimate the genetic diversity of Big Coffee VL progenies cultivated at Universidade Federal de Lavras, by evaluating growth and production traits, based on genetic distances and clusters. The experiment was established in a lattice design with 100 progenies of this coffee tree and 23 repetitions. Traits evaluated were vigor, plant height, stem diameter, node number of plagiotropic branches, pair numbers of plagiotropic branches, and productivity. Genetic divergence was evaluated by multivariate procedures: Mahalanobis generalized distance, clustering

methods, and principal component analysis. Genetic distances were estimated using Mahalanobis distance and presented variations from 0.04 to 18.70. The most similar progenies were P23 and P29 and the most dissimilar progenies were G8 and P14. The progenies were divided into three groups, with P14 present as an isolated group. Thus, it was possible to observe the existence of genetic variability among the progenies of Big Coffee VL, which can be used in breeding programs to increase grain size. Progenies G8 and P14 presented the highest genetic distance, and were the most suitable for future integration of crossings in plant breeding programs.

Key words: *Coffea arabica*; Genetic divergence; Multivariate analysis; Plant breeding