

Possibilities of Modifying Height, Architecture and Cup Quality of Arabica Coffee by Monitoring the Segregation of Caturra (*Ct*), Erecta (*Er*) and Mokka (*Mo*) Alleles*

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SUMMARY

Recent trends of the international market demand coffees produced under specific circumstances, possessing unique attributes or with superior cup quality. The Ibairi cultivar although having the best flavor among the arabicas was never cultivated in Brazil because its low yields and small seeds. From a cross of Ibairi (originally developed from var. *mokka* x Bourbon Vermelho) with a Caturra Erecta plant, a F₁ hybrid heterozygous for *mo* (*mokka* – determining good cup quality and modifying several morphological characteristics), *Ct* (*caturra* - short stature and compact growth) and *Er* (*erecta* – upright plagiotropic branches) was selfed, 362 F₂ plants and a seed sample from them were classified, yield in three consecutive harvests were recorded and corresponding F₃ progenies additionally scored in the nursery for *mo*, *Ct*, *Er* and vigor at seedling stage. Statistically significant, the homozygous *mo mo* F₂ individuals yielded an average of 34,5% less than the normal (*Mo Mo*) segregants and 19,7% less than the heterozygous. The vigor of the F₃ was increased by 4% on *mo mo* progenies. Yield decrease and vigor increase was observed irrespective of the genotypes at the *caturra* or *erecta* loci. *Ct* and *Er* singly or together did not have any effect on yield of F₂ but a 3,3% decrease in vigor was detected in the *Ct Ct* F₃ progenies. *Ct* and *mo* shorten the internodes of both ortho and plagiotropic branches, but unfortunately their jointly effect on the final architecture was not completely favorable as they were not sufficient to prevent the branches of *erecta* plants (*Er*) with a heavy load of cherries from bending over the rows or from frequently breaking off during the harvesting operation. However, it looks quite promising several short and compact *caturra mokka* plants with normal branches (*mo mo Ct Ct er er*). They might be further selected aiming at dense plantings that might compensate for the lower individual yields. The several traits that characterize *mokka* are not pleiotropic effects of the *mo* allele, provide they occasionally dissociate in F₂ plants and F₃ progenies. It is discussed the compelling evidences pointing out *mokka* as a trait derived from a species other than *C. arabica*.