

Genetic Maternal Map of Coffee

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SUMMARY

Genetic maps are useful tools to speed up the selection process on plant breeding programs, particularly on perennials such as coffee (*Coffea* spp.). For its construction, a segregating population with its parents, and polymorphic markers are required. In order to develop a coffee map, one F2 tetraploid population already available, coming from the cross between Caturra variety and Timor hybrid was used. This population showed very low polymorphism (< 10%), when assessed with 40 microsatellites available at that moment and therefore it was discarded. Because of that, a new population was developed from the cross of two diploid species, *Coffea liberica* and *Coffea eugenioides*. This population theoretically coming from two known parental plants was scored using microsatellite markers in order to develop a map. However, some of the markers presented bands in high proportion on the F2 population that were not presented on the parents.

An exploratory analysis throughout amplification of DNA of neighbouring plants of that used as mother on the manual crossing and its posterior sequencing and comparison with those "rare" bands presented on the F2 population, showed coincidence of bands, which suggested contamination with pollen of those plants.

Based on those results and given the long period of time required to develop a new population it was decided to use this population to develop a maternal map, in which, only the maternal alleles are used. This strategy, allows the utilization of one already available population, which translates on time saving, particularly on perennials. The JoinMap algorithm allows the construction of a maternal map.