

Development of Microsatellite Markers for the Identification of Brazilian *Coffea arabica* Varieties

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SUMMARY

Microsatellite markers, also known as SSRs (Simple Sequence Repeats), have proved to be excellent tools for variety identification and determining genetic relationships. A set of 130 SSR markers was used to analyze the genetic similarity among twenty-five *Coffea arabica* varieties. These were composed of nineteen commercially important Brazilian varieties, six Indian hybrids of *Coffea arabica*, *Coffea canephora* and *Coffea liberica*. The set of SSR markers used consisted of 54 newly developed markers derived from microsatellite enriched libraries, 57 markers designed on the basis of coffee SSR sequences available from public databases, six markers already published and thirteen universal chloroplast microsatellite markers. Only 22 markers were polymorphic, detecting 2-7 alleles per locus, with an average of 3.5 alleles. The level of polymorphism was positively correlated with the number of repeats. Based on the band patterns generated by the polymorphic SSR loci, the set of twenty-five coffee varieties were clustered in two main groups. One group composed of the largest part of the Brazilian varieties and a second one composed of the Indian hybrids and a few Brazilian varieties. Color mutants could not be separated. The clustering was in accordance with the genealogy of the varieties and showed the high similarity among the Brazilian varieties.