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“Bridging the gap between increasing knowledge and decreasing resources”

Genetic Diversity of Aguaje (*Mauritia flexuosa* L.f.) in Peruvian Amazon

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Abstract

Aguaje (*Mauritia flexuosa* L.f.) is a dioecious edible fruit-bearing palm with enormous importance across Amazon River Basin. Despite its doubtless local importance as natural key species and as an economical asset this species is little known outside of its range distribution. Moreover, due to its relative abundance in natural populations, aguaje was generally perceived as inexhaustible natural source. Thus, till nowadays, the majority of local fruit production is still derived from female palms logged in wild stands. This long-term practice leads to negative selection, since usually the most fruitful females with the best attributes are chopped down. Such long-lasting disturbance is significantly affecting natural stands and contributes to genetic erosion of this palm species. We investigated aguaje's genetic variation in Peruvian Amazon with the main objective to describe its genetic diversity in the area of its origin. So far nine microsatellite primers (SSR) were tested in preliminary assay comprising of 57 individuals collected from natural stands of Pacaya Samiría Natural Reserve and from cultivated stands in Tingo María district. Eight out of nine microsatellites tested were polymorphic and observed heterozygosity in Pacaya Samiría and Tingo María was 0.427 and 0.285, respectively. Size of amplified region ranged from 90 to 260 with an average number of alleles per locus of 2.44 in Pacaya Samiría and 2.67 in Tingo María with a mean polymorphic information content (PIC) of 0.378 and 0.335, respectively. The results indicated the higher degree of polymorphism within natural population of Pacaya Samiría which is strongly supporting a hypothesis of a higher genetic variation within the natural genetic pool. Moreover, our results are consistent with the theory of higher genetic variance in the centres of origin, since an earlier similar study from Brazil recorded also a lower degree of heterozygosity. Our research verified high reproducibility of those microsatellite primers for further studies of this species. Furthermore, our research also identified study sites in Peruvian Amazon as promising zone for germplasm derivation for further domestication and breeding programmes.

Keywords: Genetic conservation, genetic variation, microsatellite