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Genetic Variability in Wild and Domestic Populations of *Inga edulis* Mart. (Fabaceae) in Peruvian Amazon

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Abstract

Human activity in the Peruvian Amazon causes native vegetation fragmentation into smaller units resulting on the increase of agricultural systems. Understanding the level, the structure and the origin of morphologic within and among populations variation is essential for planning better management strategies aimed at sustainable use and conservation of *Inga edulis* Mart. species. We evaluated the genetic variability in wild and domestic population to unfold cultivation changes over the species genetic resources. We have studied 400 adult trees: 200 cultivated on arable land and 200 wild growing in untouched lowland rain forest. The individuals were randomly selected. Sampling sites were selected and defined on the basis of the geographical coordinates: longitude, latitude and altitude. Phenotypic variation was monitored using the proposed descriptor of qualitative and quantitative features (e.g., weight of hundred seeds). For each individual a voucher specimen was kept. The total genomic DNA was extracted from young leaves, conserved in silica gel, with INVITEK, Invisorb®Spin Plant Mini Kit. Samples were then genotyped with five microsatellite (SSR) loci. One locus (*Pe15*) was cross-transferred, developed previously for *Pithecellobium elegans*. The remaining four loci (*Inga03*, *05*, *08*, *33*) were previously developed for the species. Polymerase chain reaction (PCR) was made using a Biometra® T1 Thermocycler using the following profile: 95 °C for 2 min; 95°C for 15 s, 55/59 °C for 30 s, 72 °C for 30 s, 30 cycles; 72 °C for 15 min. The PCR products were fluorescently labelled. The visualization of fragments was carried out according to standard protocols on genetic analyser, ABI PRISM® 310 (Applied Biosystems), using ABI GENESCAN and GENOTYPER software. The phenotypic and genotypic results of wild versus domestic populations are under evaluation to verify if cultivation is altering the allelic variation considering that morphology is considerably changed.

Keywords: Peruvian Amazon, native vegetation, variation, population, *Inga edulis* Mart., DNA, PCR, microsatellite locus

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