

Genetic Variability of *Hypothenemus hampei* (Ferrari) in Colombia and Development of Molecular Markers

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SUMMARY

The genetic variability of the coffee berry borer (*Hypothenemus hampei*) in Colombia was evaluated using the amplified fragment length polymorphism (AFLP) technique. Sixty *H. hampei* DNA samples from 16 coffee producing areas throughout Colombia were analyzed. We performed AFLP's with these DNA samples using the two most polymorphic selective primers from a previous investigation. The results revealed very low genetic variation in the Colombian samples but enough polymorphism to perform a phylogenetic analysis. The findings indicated that there were multiple *H. hampei* introductions into Colombia probably from Peru, Ecuador, and Brazil. There was a main line of *H. hampei* present in every coffee-producing area in Colombia that spread throughout the country, perhaps due to coffee pickers moving within coffee regions and transporting infested coffee berries or adult *H. hampei* females. We also found that a line of *H. hampei* present in Costa Rica matched the fingerprint profile of this main line in Colombia, thus raising the possibility that the line of *H. hampei* in Costa Rica originated from Colombia. We designed sequence tagged sites STS markers from AFLP polymorphisms to answer some issues related to the biology and ecology of *H. hampei*. The design of co-dominant markers using Genome Walking and Single Stranded Conformational Polymorphism SSCP will be also of enormous relevance for a better understanding of the biology and ecology of *H. hampei*.

Key words: AFLP, SSCP, DNA Fingerprinting, broca del café, Coffee, insect-pest, molecular markers