

Evolutionary History Of The Bean Weevil (*Acanthoscelides obtectus*)

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Brazil stands out as the largest producer and consumer of common bean (*Phaseolus vulgaris*) worldwide, however, the crop has low productivity due to a combination of factors, including pest attacks and infestations those reduce the nutritional and commercial value. This work aimed study hypotheses about historical factors that led to the current distribution of bean weevil existing populations, using molecular techniques based on two mitochondrial DNA genes: COI and 16S rRNA. A total of 148 sequences from 28 populations were evaluated for the COI gene and 65 sequences from 15 populations for the rRNA16S gene. These populations were originated from Brazil, Mexico, Peru, Spain, Switzerland, France, Cameroon and South Africa. Total genomic DNA was extracted from each insect, amplified by PCR and sequenced. The sequences were analyzed by Sequencher®4.1.4 software and aligned manually. Phylogeographic analyses based on both genes were obtained from a network in which haplotypes from Mexican and Peruvian populations formed two independent lines showing high genetic diversity. Among Brazilian's individuals, two distinct mitochondrial lines showed low genetic diversity and possibly originated from the Mesoamerican line. It's likely the Brazilian's populations were introduced at one single time, forming two ancestral genetic lines or were introduced into two separate events from the same source. The geographic distribution of haplotypes in Brazil led to the conclusion: one of the Brazilian lines is allocated mainly in the south of the country and the other is widely distributed in 25 of the 28 populations sampled in this study. Bean weevils were possibly brought to Brazil from Mexico by Native American populations and later taken to Europe and Africa.