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“Bridging the gap between increasing knowledge and decreasing resources”

Morphological and Molecular Characterisation of 11 Varieties of Native Chilli Peppers (*Capsicum* spp.) of the Peruvian Amazon

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Abstract

Peruvian Amazonia is one of the most diverse ecosystems of the world. With its specific location and climatic conditions it forms a habitat for more than 50 % of world wide species and represents the origin for many plant species with a high economic, cultural and medicinal importance. Among these species are native chili peppers (*Capsicum* sp.). Till today the information on the diversity of Amazonian chili peppers is not complete although its importance is increasing. For present research, 11 native chili peppers were collected with the main purpose to measure their genetic distance. First the samples were described morphologically according to international standardised descriptors for *Capsicum*. Biological material, especially seeds, was first homogenized and then tested in the laboratory using PCR and modern IPBS (Inter Primer Binding Site) method to provide molecular based polymorphism description. Despite the fact that the samples were diverse, the results showed very interesting facts: 11 varieties belonged to only 3 species: *C. chinense*, *C. baccatum* and *C. frutescens*. The lowest dissimilarity rate was found in “charapita amarillo” and “charapita rojo” chili (0.38) and the highest rate was recorded in chili “pinchito de mono” (0.73). At least we compared the results to find a substitute to the widely used “charapita amarillo” variety, which has a high local economic and cultural importance. The chili “trompito amarillo” presented similar characteristics and promised good yield as well. This research formed a good data base for further investigation and studies. There is a great scientific challenge to determine and deeply investigate the majority of Amazonian chili peppers to get a complete data base.

Keywords: Amazonian chilli peppers, genetic distance, IPBS, morphologic descriptors, PCR