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Diversity Assessment of the Tropical Legumes Genus *Stylosanthes*: A Research Project in Venezuela

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Abstract

The genus *Stylosanthes* is probably the most important genus for purposes other than grain production (e.g. forage, soil cover, soil improvement). Currently, some species have a particular importance for low-input agro-ecosystems in Australia, Africa, Southeast Asia, India and China. In previous research, germplasm and herbarium surveys were conducted in Venezuela and a comprehensive taxonomic and biogeographic database was obtained. It helped to better understand the natural distribution of the genus and identify collection gaps regarding both species and regions of particular interest. Based on the herbarium survey, three distinct groups of odd specimens were identified. With this information, a trip was organised to the respective origin regions to collect herbarium specimens, seeds and inflorescences. Examination of the collected material showed, that the three odd groups represent two as yet undescribed species (“*Stylosanthes venezolensis*” and “*Stylosanthes falconensis*”) and one new botanical variety of *Stylosanthes viscosa* from high altitudes (above 2500 m asl). One of the conclusions of the survey was that some Venezuelan *Stylosanthes* species have multiple adaptations and can be found in a quite broad range of environments; therefore, quite distinct ecotypes are likely to occur. Since ecological conditions alone may not be sufficient to classify populations as distinct ecotypes, in-depth genetic studies are required to determine whether populations from contrasting environments are actually genetically so diverse that they can be classified as ecotypes. To properly assess the natural, inter- and intra-specific diversity of *Stylosanthes* species, future research in Venezuela will concentrate on the variability occurring in the wild. For this, germplasm collecting missions will be conducted to regions covering environmental ranges of particular interest. Then, the collected germplasm will be used for molecular analysis of genetic diversity, applying the Random Amplification of Polymorphic DNA (RAPD) technique. As a result, we will be able to identify not only inter- and intra-specific *Stylosanthes* variations but also to map the occurrence of such genetic diversity in Venezuela. The information obtained will help breeders and biodiversity managers to design further collecting and conservation strategies.

Keywords: Diversity, genetic, RAPD, *Stylosanthes*, Venezuela