



University of Kentucky
UKnowledge

International Grassland Congress Proceedings

XXI International Grassland Congress / VIII
International Rangeland Congress

Genetic Variance of Wild *Agrostis stolonifera* L. Germplasm Resources Based on the Peroxidase Isoenzyme

Li Zhong
Sichuan Agricultural University, China

Youmin Gan
Sichuan Agricultural University, China

Chengbin Tang
Sichuan Agricultural University, China

Follow this and additional works at: <https://uknowledge.uky.edu/igc>



Part of the [Plant Sciences Commons](#), and the [Soil Science Commons](#)

This document is available at <https://uknowledge.uky.edu/igc/21/13-2/27>

The XXI International Grassland Congress / VIII International Rangeland Congress took place in Hohhot, China from June 29 through July 5, 2008.

Proceedings edited by Organizing Committee of 2008 IGC/IRC Conference

Published by Guangdong People's Publishing House

This Event is brought to you for free and open access by the Plant and Soil Sciences at UKnowledge. It has been accepted for inclusion in International Grassland Congress Proceedings by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.

Genetic variance of wild *Agrostis stolonifera* L. germplasm resources based on the peroxidase isoenzyme

ZHONG Li, GAN You-Min and TANG Cheng-Bin

Department of Grassland Science, Sichuan Agricultural University, Ya'an, China, E-mail: zhongliycy@126.com

Key words: *Agrostis stolonifera* L., peroxidase isoenzyme, genetic variance, germplasm resources, POD patterns

Introduction *Agrostis stolonifera* L. is one of the important cool season turf grasses in China, but little information was available on the conservation genetics and population genetics of the species (ZHANG Dao-yuan, 2006). In a comparison of KROMI, this study investigated 19 individuals of *Agrostis stolonifera* L. that were distributed in Guizhou province, using allozyme analysis for showing the genetic variance and genetic relatives.

Materials and methods On the basis of the literature records and the on-the-spot investigation in the wild habitats of *Agrostis stolonifera* L., we sampled individuals from 18 wild populations and 1 cultivated population. Within each population a 0.3g sample of leaves was collected and mashed in a small vial with a drop of modified extraction buffer (Tris-HCl, 10ml 10% glycerin), the extract was then transferred to a 1.5ml centrifuge tube and centrifuged at 10000r/min. Samples were electrophoresed by PAGE system.

Electrophoretic bands corresponding to multiple alleles at each locus were named 1, 2, 3, ..., in order of mobility from slow to fast, and alleles were indicated by a, b, c, ... (WANG Zhong-ren, 1996). Genetic divergence among populations was characterized on the basis of Nei's genetic distance, which were also used to perform a cluster analysis using unweighted pair group method with arithmetic averages (UPGMA) by Ntsys2.1.

Results

Isozyme variance By the electrophoretic results of the POD enzyme system, we detected two peroxidase isoenzyme points: *Pod-1*, *Pod-2*. The *Pod-1* included 8 bands, RF were: 0.031, 0.046, 0.065, 0.088, 0.111, 0.131, 0.163, 0.183, it indicated there were four alleles: *Pod-1a*, *Pod-1b*, *Pod-1c*, *Pod-1d*, and *Pod-1a*, *Pod-1b*, *Pod-1c* were the main alleles. The *Pod-2* included 8 bands, RF were: 0.644, 0.667, 0.699, 0.752, it also included four alleles: *Pod-2a*, *Pod-2b*, *Pod-2c*, *Pod-2d*, and *Pod-2c* was the main allele.

Genetic relatives The Nei's genetic similarity coefficient of the materials of *Agrostis stolonifera* L. ranged from 0.562 to 0.960, can be clustered into four groups.

Conclusions There was a significant genetic variance among materials of *Agrostis stolonifera* L. and the cultivated populations showed a significant genetic difference from natural populations. And by the Peroxidase Isoenzyme variance, materials could be divided into 4 groups.

References

- WANG Zhong-ren (1996). *Plant allozyme analysis*. Science Press, Beijing, CHINA.
- ZHANG Dao-yuan, TAKAMIZO, Tadashi (2006). Genetic differentiation and systematic relationships of *Agrostis stolonifera* L. based on multi-molecular marker evidence. *Acta prataculturae sinica Journal*, 6, 100-106.