

# Genetic Diversity of Common Carpetgrass Revealed by AFLP Markers



Zan Wang<sup>1,2</sup>, Kevin E. Kenworthy<sup>1</sup> and Yanqi Wu<sup>2</sup>

<sup>1</sup>Department of Agronomy, University of Florida, Gainesville, FL 32611;

<sup>2</sup>Department of Plant and Soil Sciences, Oklahoma State University, Stillwater, OK 74078



## INTRODUCTION

*Axonopus fissifolius* (Raddi) Kuhl., a perennial, warm season grass, is native to the West Indies, Central and South America. Its low maintenance attributes make it a desirable turfgrass species in the southeastern United States. The objectives were to assess the genetic diversity of common carpetgrass accessions and to associate genetic relatedness to collection locations.

## MATERIALS AND METHODS

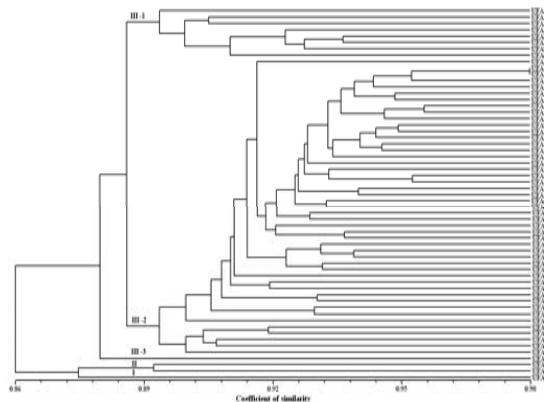
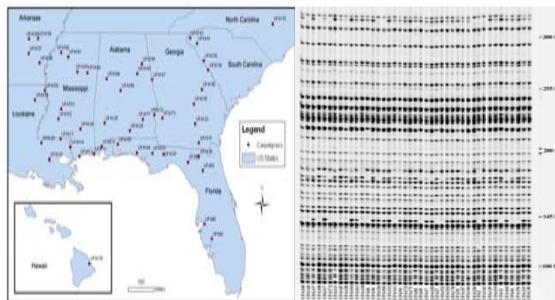
Fifty-nine common carpetgrass accessions were divided into naturalized genotypes (49 from the USA, one from Brazil) and 9 seed-derived genotypes (from Australia). (Fig.1) DNA was isolated from healthy leaf tissues with QIAGEN kits. AFLP analysis was performed following Wu et al. (2006). Genetic similarity coefficients (GS), cluster analysis (CA) were calculated by NTSYSpc 2. GenAEx 6 was used to calculate No. of polymorphic bands (NPB), percentage polymorphic bands (PPB), and Shannon's information index (I).

## RESULTS

Twenty primer pairs were used to detect the genetic diversity of common carpetgrass (Table 1, Fig. 2).

**Table 1 Results of genetic variability of common carpetgrass.**

Groups	Accessions	NPB	PPB	GS	I
Seed-derived	9	276	27.1a	0.897a	0.161a
Naturalized	50	447	42.3b	0.900a	0.232b
All	59	469	44.1	0.899	0.240



Based on the cluster analysis the 59 accessions were divided into three major clusters (Fig. 3).

Accession from Brazil was found to be distinct from all other accessions and formed cluster I; Cluster II consisted of two accessions from Arkansas and Mississippi; All seed-derived accessions and rest of the naturalized accessions formed Cluster III.

## CONCLUSIONS

The genetic diversity was observed at a low level (PPB=44.1%, and I = 0.24) for the common carpetgrass collections.

Naturalized accessions had relatively higher genetic diversity than that of the seed-derived accessions.

Accessions were randomly distributed throughout the dendrogram with no definite geographic patterns.

## REFERENCE

Wu Y. Q., C. M. Taliaferro, G. H. Bai, D. L. Martin, J. A. Anderson, M. P. Anderson, and R. M. Edwards. 2006. Genetic analyses of Chinese *Cynodon* accessions by flow cytometry and AFLP markers. *Crop Sci.* 46: 917-926.

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