



A new reduced height gene found in the tetraploid semi-dwarf wheat landrace Aiganfanmai

Z.S. Peng, X. Li, Z.J. Yang and M.L. Liao

Key Laboratory of Southwest China Wildlife Resources Conservation,
College of Life Science, China West Normal University, Nanchong, China

Corresponding author: Z.S. Peng
E-mail: pzs8833@163.com

Genet. Mol. Res. 10 (4): 2349-2357 (2011)
Received October 8, 2010
Accepted June 3, 2011
Published October 5, 2011
DOI <http://dx.doi.org/10.4238/2011.October.5.5>

ABSTRACT. Aiganfanmai is a dwarf tetraploid wheat landrace (*Triticum turgidum* var. *turgidum*) that stably produces the semi-dwarf trait. Plant height varies from 80-105 cm under cultivation. Compared with tall durum wheat (*T. turgidum* var. *durum*) variety Langdon, we found it to have short spikes and seeds, besides a semi-dwarf character. We crossed Aiganfanmai with Langdon to analyze the genetic basis of the semi-dwarf trait. The F₂ population segregated at a 1:3 ratio for the short trait to the normal, which demonstrates that Aiganfanmai carries a recessive reduced height (Rht) gene. This gene was found to be located between the molecular markers Xgwm471 and Xgwm350 on chromosome arm 7AS by microsatellite analysis. No Rht gene had been reported from this chromosome; we designated it as Rht22. Rht 22, unlike other previously reported Rht genes, does not reduce internodal cell length. Reduced cell numbers might explain the short stem trait.

Key words: Wheat; *Triticum turgidum*; Dwarf; Rht22; Cell dimension; Landrace