GMR Genetics and Molecular Research
Online Journal
ISSN:1676-5680

# Genetic diversity of central and peripheral populations of *Toona ciliata* var. *pubescens*, an endangered tree species endemic to China

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Genet. Mol. Res. 13 (2): 4579-4590 (2014)
Received June 5, 2013
Accepted October 29, 2013
Published June 17, 2014
DOI http://dx.doi.org/10.4238/2014.June.17.10

**ABSTRACT.** Our objective was to examine the genetic diversity of central and peripheral populations of *Toona ciliata* var. *pubescens*, to elucidate whether the central-peripheral hypothesis applies to these populations. We analyzed 392 individuals from nine natural populations using eight pairs of polymorphic SSR primers. The results showed that the mean numbers of observed and expected alleles in peripheral populations were higher than in central populations. Common widespread and rare local (RL) alleles were observed in all populations. However, common local alleles were found in five populations and rare widespread alleles were only found in three. The total numbers of the four types of alleles were higher in peripheral than in central populations, and the quantity of the RL allele was obviously higher in the peripheral populations than in the central populations. Both the observed and expected heterozygosities were higher in peripheral populations compared with the central populations. The coefficient of gene differentiation of the peripheral populations was 0.3045, which was significantly higher than that of the central

 

populations. The gene flow between central populations was greater than one, but less than one between peripheral populations. This indicates that frequent gene flow exists between central populations, while terrain and habitat fragmentation prevent gene flow between peripheral populations. A Mantel test indicated that there was no relationship between genetic and geographical distance of *T. ciliata* var. *pubescens*.

**Key words:** Central population; *Toona ciliata* var. *pubescens*; Conservation strategies; Genetic diversity; Peripheral population

 