



Comparison of RAPD and ISSR markers for assessment of genetic diversity among endangered rare *Dalbergia oliveri* (Fabaceae) genotypes in Vietnam

D.T. Phong, V.T.T. Hien, T.T.V. Thanh and D.V. Tang

Department of Experimental Taxonomy and Genetic Diversity,
Vietnam National Museum of Nature,
Vietnam Academy for Science and Technology, Hanoi, Vietnam

Corresponding author: D.T. Phong
E-mail: dinhthiphong@hotmail.com

Genet. Mol. Res. 10 (4): 2382-2393 (2011)
Received January 14, 2011
Accepted July 18, 2011
Published October 6, 2011
DOI <http://dx.doi.org/10.4238/2011.October.6.3>

ABSTRACT. *Dalbergia oliveri* is a leguminous tree of the Fabaceae family. This species is popular and valuable in Vietnam and is currently listed on the Vietnam Red List and on the IUCN Red List as endangered. Two PCR techniques using RAPD and inter-simple sequence repeat (ISSR) markers were used to make a comparative analysis of genetic diversity in this species. Fifty-six polymorphic primers (29 RAPD and 27 ISSR) were used. The RAPD primers produced 63 bands across 35 genotypes, of which 24 were polymorphic. The number of amplified bands varied from one to four, with a size range from 250 to 1400 bp. The percentage polymorphism ranged from 0 to 75. Amplification of genomic DNA of the 35 genotypes, using ISSR analysis, yielded 104 fragments, of which 63 were polymorphic. The number of amplified fragments using ISSR primers ranged from one to nine and varied in size from 250 to 1500 bp. The percentage polymorphism ranged from 0 to 100. ISSR markers were relatively more efficient than RAPDs. The

mental test between two Jaccard's similarity matrices gave $r \geq 0.802$, showing good fit correlation between ISSRs and RAPDs. Clustering of isolates remained more or less the same for RAPDs compared to combined RAPD and ISSR data. The similarity coefficient ranged from 0.785 to 1.000, 0.698 to 0.956 and 0.752 to 0.964 with RAPD, ISSR, and the combined RAPD-ISSR dendrogram, respectively.

Key words: Molecular marker; ISSR; RAPD