

Genetic Diversity among the Natural Population of Malabar Neem (*Melia dubia* Cav.) in South Gujarat

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Keyword: *Melia dubia*, Malabar neem, genetic diversity, molecular profiling, ISSR markers

1. Introduction

Melia dubia, a short rotational agroforestry tree species, has earned wide fame among farmers of India for its apparent monetary benefits. To gain first-hand knowledge about population structure and diversity, unexplored naturally occurring four populations of this species are being examined in India's northernmost Western Ghats region.

2. Material and methods

The present investigation was carried out at the College of Forestry, Navsari Agricultural University, Navsari, Gujarat, India, from January-July 2021. Four populations of *M. dubia* viz. Kaprada (KP), Nanapondha (NP), Waghai (WG) and Sagai (SG) were selected from the natural growing regions of the hilly tract in South Gujarat. We used the Random amplified polymorphic DNA (RAPD) markers technique to reveal the genetic diversity among selected populations of *M. dubia*.

3. Results and discussion

Molecular profiling of four natural populations comprising 40 genotypes was done with RAPD markers. A total of 59 loci were amplified with ten deca-primers, of which 44 (74.58 %) loci were polymorphic, and 15 (25.42 %) were mono-morphic. In the current genetic diversity analysis, ranges of genetic diversity variables (PPL, Na, Ne, H and I) revealed moderate polymorphism and gene diversity in all populations of *M. dubia*. Comparatively, ISSR markers-based investigations by Rawat *et al.* (2018) found similar levels of genetic diversity indices in *M. dubia* (mean PPL= 50.77, H= 0.21 and I=0.30) in India. Moderate genetic diversity and population differentiation were also reported in *Melia azedarach*, a close kinship of *M. dubia* (Thakur *et al* 2016).

References

- Rawat S, Arunkumar AN, Annapurna D, Karaba NN and Joshi G 2018. Genetic diversity of *Melia dubia* using ISSR markers for natural populations and plantations. *International Journal of Genetics* **10**(9): 490-494.
- Thakur S, Choudhary S, Singh A, Ahmad K, Sharma G, Majeed A and Bhardwaj P 2016. Genetic diversity and population structure of *Melia azedarach* in North-Western Plains of India. *Trees* **30**(5): 1483-1494.