

**Author(S):** Ankush Khajuria<sup>a</sup>, Puneet Sharma<sup>a</sup>, Susheel Verma<sup>a</sup>, J. L. Karihaloo<sup>b</sup>

**Title:** Genetic Diversity in *Valeriana wallichii* DC., a Medicinally Important Threatened Species as Assessed by Random Amplified Polymorphic DNA in Two Himalayan States of India

**Keywords:** *Valeriana wallichii*, Random Amplified Polymorphic DNA, Genetic diversity, Threatened, Himalayas Valepotriates

**Year:** 2013

**Name of journal:** *Proceedings of the National Academy of Sciences, India Section B: Biological Sciences*

**Volume & Issue** 84(3)

**Page No:** 579-585

**Institute:** <sup>a</sup>Conservation and Molecular Biology Lab, Centre for Biodiversity Studies, School of Biosciences and Biotechnology, Baba Ghulam Shah Badshah University, Rajouri, 185131, Jammu and Kashmir, India  
<sup>b</sup> Asia Pacific Consortium on Agriculture Biotechnology, NASC, DPS Marg, Pusa, New Delhi, 110012, India

### Abstract

Eleven populations of *Valeriana wallichii* DC., a threatened medicinal plant, collected from Jammu and Kashmir and Uttarakhand states were analysed using Random Amplified Polymorphic DNA technique. Eighteen selected primers produced a total of 188 bands, of which 43.6–83.5 % were polymorphic within populations. Highest value for both Nei's genetic diversity index and Shannon's information index was recorded for Cha population whereas lowest values were recorded in Thajwas populations. Shannon index based analysis calculated the total species diversity ( $H_{sp}$ ) as 0.4060 and average diversity within populations ( $H_{pop}$ ) as 0.2967. The latter comprised a 0.7241 proportion of the total diversity. Analysis of molecular variance showed similar results with 67.33 % variation existing within populations. Overall, Thajwas population showed greatest  $F_{ST}$  distance from all the other populations and it was also the most distant in the neighbour joining tree. Results of the study have been discussed in relation to the mating system of the species, extent of diversity in other related and rare species and conservation strategies.