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Methodology

Analysis of genetic diversity in *Larix gmelinii* (Pinaceae) with RAPD and ISSR markers

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ABSTRACT. Dahurian larch (*Larix gmelinii*), a deciduous conifer, is the northernmost tree, native to eastern Siberia and nearby regions of China. We used growth traits and molecular markers to assess genetic variation in different *L. gmelinii* growing regions; 105 individual samples were collected from seven regions of the Qingshan Forestry Centre, Heilongjiang Province, China. The greatest genetic regional variation was seen in the Youhao area, based on coefficients of variation for tree height, diameter and volume (14.73, 28.25, and 55.27%, respectively). Analysis using molecular markers showed rich genetic diversity. The RAPD and ISSR methods both indicated that most variation came from within populations. The seven regions were divided into two groups (Daxing'an and Xiaoxing'an Mountain ranges) by RAPD cluster analysis: Tianchi, Xiaojiuya, Yuanjiang, and Taiping regions were placed in the first group at a genetic distance of 0.08; while the other regions were in the second group. The correlation

between RAPD markers and geographical distance was significant, with a correlation coefficient of 0.752.

Key words: Genetic diversity; Inter-simple sequence repeat; Growth traits; Random amplified polymorphic DNA; *Larix gmelinii* (Rupr.)

