

Interpopulation Congruence in Chinese *Primula ovalifolia* Revealed by Chemical and Molecular Markers Using Essential Oils and ISSRs

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The chemical composition of the essential oils of five natural populations of *P. ovalifolia* from central and southwest China and their interpopulation variability were first analyzed by using GC-MS. Twenty-two essential oil compounds were obtained, in which eighteen ones were identified and characterized representing 95%–96% of the oil composition. Three main chemotypes, *i. e.*, the methyl-acetyl-hydroquinone-rich, hydroquinone-rich, and acetyl-hydroquinone-rich chemotypes, were then differentiated, corresponding to the three groups obtained from the cluster analysis based on the essential oil composition percentages. Genetic variations among the five populations were also investigated using the Inter-Simple Sequence Repeats (ISSR) markers. Finally, the Mantel test showed that there was a significant correlation between two distance matrices based on the chemical compounds of essential oils and ISSR markers, confirming the congruence of interpopulation relationships in the *P. ovalifolia* revealed by the chemical and molecular markers.

Key words: *Primula ovalifolia*, Essential Oil, ISSR Markers