Correlation analysis of genetic diversity and population structure of *Houttuynia cordata* Thunb with regard to environment

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ABSTRACT. To study the levels of genetic diversity, and population structure, of *Houttuynia cordata* Thunb, the genetic background and relationships of populations were analyzed in terms of environmental factors. The genetic diversity and population structure of *H. cordata* were investigated using sequence-related amplified polymorphisms and correlation with environmental factors was analyzed using the SPSS software. Two thousand one hundred sixty-three sites were amplified from 41 pairs of primers, 1825 of which were polymorphic, and the percentage of polymorphic loci was 84.37%; the percentage of polymorphic sites was 72.14 and 67.77% at the species and population level, respectively. The observed number of alleles was 1.52 and 1.30 at species and population level, respectively. The effective number of alleles was 1.38 and 1.24 at species and population level, respectively. The Nei’s diversity was 0.26 and 0.15 at species and population level,
respectively. The Shannon’s information index was 0.87 and 0.63 at species and population level, respectively. The genetic differentiation coefficient of populations was 0.51, and 12 populations were divided into three classes based on $D = 0.20$; the genetic diversities of different populations are correlated at different significance levels ($P < 0.05$) with environmental factors. Genetic differentiation existed among populations and the populations exhibited heteroplasmy.

**Key words:** Correlation; Genetic diversity; Environmental factors; *Houttuynia cordata* Thunb; Population structure