Identification of *Camellia nitidissima* Chi Hybrids by ISSR

Fan Zhengqi, Li Jiyuan, Li Xinlei, Yin Hengfu, Xiao Zheng, Sun Yingkun
Research Institute of Subtropical Forestry, CAF, Fuyang, Zhejiang 311400, China

**Abstract:** The genetic variations among parents and their hybrids of *Camellia nitidissima* were analyzed using ISSR molecular marker. *Camellia nitidissima* was used as one of their common parents, while *Camellia sasanqua*, *Camellia japonica* and *Camellia tunghinensis* were their other parents. Eleven stable and polymorphic primers were from twenty ISSR primers, which could receive 199 amplification loci and 195 polymorphic loci with 97.99% in polymorphism. The genetic similarity coefficients were high (0.618-0.769) between every hybrid and their common parent (*Camellia nitidissima*), and higher between their genetic make up and the other parents than to unrelated plants. The results of clustering analysis were consistent with that of the genetic similarity coefficients. These results implied that four plants really were the hybids between *Camellia nitidissima*, *Camellia sasanqua*, *Camellia japonica* and *Camellia tunghinensis*. Furthermore, we found the hybrids inclined to the other camellia parents rather than *Camellia nitidissima* in the genetic similarity coefficients and the clustering analysis. We deduced that it was difficult for the hybrids to inherit the genetic material of *Camellia nitidissima*, and their characters more closely resembled the other parent. This interpretation suggests the reason why new varieties with golden flowers are difficult to obtain by hybridization of *Camellia nitidissima*.

Meanwhile, the alleles, expected alleles, expected heterozygosities and Shannon diversity indexes of hybrids were higher than their parents respectively. This shows that the hybrids of *Camellia nitidissima* had more genetic variations and more genetic diversity in DNA level.

*This paper contains a great deal of information useful to those interested in using DNA analysis to assist in the selection of the results of hybridization. The full text of this paper including literature cited will be found of the ICS website*

**Brief Introduction of the Field Genebank for *Camellia sasanqua* in Anji Zhejiang**

LIN Tian¹ LI Tian-fei¹ Wei Chun-long¹ LI Shou-guo² GE Guo-jun¹ LUO Li-jun¹
¹ Shanghai Agrobiological Gene Center, Shanghai 201106; ² Shanghai Station for DUS Testing Center of New Plant Varieties, Shanghai 201106

*Camellia sasanqua* is one of the loveliest autumn and winter blooming shrubs for its elegant plant appearance, colorful and graceful scented flowers, long blooming period and evergreen foliage. There are about 500 cultivars in the world. In China, horticulturists have been introducing sasanquas since the 1980s. Prof. Xu Biyu listed 122 sasanquas in his book, *C. sasanqua* (Xu Biyu, 2007). Ten sasanqua cultivars are commonly cultivated in China. Hangzhou Flower Nursery, Hangzhou Botanic Garden and Shanghai Agrobiological Gene Center (SAGC) have established a field genebank for sasanquas.

*The full text of this paper can be found on the ICS website*