



# Development of microsatellite markers in the tetraploid fern *Ceratopteris thalictroides* (Parkeriaceae) using RAD tag sequencing

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**ABSTRACT.** To understand the genetic variability of the tetraploid fern *Ceratopteris thalictroides* (Parkeriaceae), we described 30 polymorphic microsatellite markers obtained using the restriction site-associated DNA (RAD) tag sequencing technique. A total of 26 individuals were genotyped for each marker. The number of alleles per locus ranged from 4 to 10, and the expected heterozygosity and the Shannon-Wiener index ranged from 0.264 to 0.852 and 0.676 to 2.032, respectively. Because these 30 microsatellite markers exhibit high degrees of genetic variation, they will be useful tools for studying the adaptive genetic variation and sustainable conservation of *C. thalictroides*.

**Key words:** *Ceratopteris thalictroides*; Homosporous fern; Microsatellite marker; RAD tag sequencing; Tetraploid species