Isolation and characterization of microsatellite loci in *Sisyrinchium* (Iridaceae) and cross amplification in other genera

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ABSTRACT. Recent phylogenetic studies on *Sisyrinchium* strongly suggest that species classified in section *Hydastylus* and section *Viperella* belong to a single group of plants in recent adaptive radiation (Clade IV). These species neither present clear morphological differentiation among them nor show clear identification using DNA barcode markers. Thus, the main goal of this study was to develop a set of polymorphic microsatellite markers compatible for representative

species of both sections to ensure variability that could be revealed by SSR markers. Therefore, microsatellite primers were isolated and characterized for *Sisyrinchium palmifolium* and *S. marchioides*. In addition, transferability of the developed primers was tested in Iridoideae, primarily in closely related species of *Sisyrinchium*. Sixteen microsatellite loci were developed from enriched genomic libraries, of which ten were polymorphic. G_{ST} values indicated higher differentiation among subpopulations of *S. palmifolium* than those from *S. marchioides*. Major transferability was obtained using primers isolated from *S. marchioides*. All primers exhibited higher rates of cross-amplification for species belonging to Clade IV of *Sisyrinchium*, as well as to the genera *Calydorea* and *Herbertia*. These developed microsatellite markers can be used as an efficient tool for characterization of genetic variability in species belonging to Iridoideae, as well as for studies on population dynamics, genetic structure, and mating system in other *Sisyrinchium* species.

Key words: *Sisyrinchium palmifolium*; *Sisyrinchium marchioides*; Genetic diversity; Iridaceae; Microsatellite