Comparison of Natural and Cultivated *Iris* Species from Mongolian Rangelands and Their DNA Sequences

S. Lkhagvasuren
Mongolian Academy of Sciences, Mongolia

L. Enkhtuya
Mongolian Academy of Sciences, Mongolia

Ts. Munkhzul
Mongolian Academy of Sciences, Mongolia

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S . Lkhagvasuren , L . Enkhtuya , Ts . Munkhzul
Institute of Botany , Mongolian Academy of Sciences , Ulaanbaatar-210351 , Mongolia Lsuren52@yahoo .com

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Introduction The flora of Mongolia includes at least 3000 species of vascular plants , and out of these approximately 800 have been used for medicinal purposes (Grubov ,1982) . *Iris* species have been frequently used for the treatment of various diseases , such as bacterial infections , cancer and inflammation . From the substances involved , 23 compounds have been thus far successfully isolated and their identity revealed (Purev et al . ,2002) . A total of 12 collections of *Iris* species from desert-Gobi , steppe-grassland , forest-steppe , and mountains were planted at the Botanical Garden in Ulaanbaatar , Mongolia . . *Iris* species are an important medicinal plant group (Enkhtuya , 2004) . Phylogenetic relationship trees are useful for predicting medicinal compounds in other species (Lkhagvasuren et al . , 2004) . DNA sequence data of this species have been submitted to Genbank .

Materials and methods Water content , water deficit , and transpiration rate were determined by the methods of Ivanov et al . (1950) . Total plant genomic DNA was extracted with DNeasy Plant Mini Kit (Qiagen , Hilden , Germany) . PCR amplification of the plastid DNA fragment between *rpl16* and *rpl14* genes was performed with the sense primer 5'-AAAGATCTAGATTTCGTAAACAACATAGAGGAAGAA-3' and antisense primer 5'-ATCTGCAGCATTTAAAAGGG TCTGAGGTTGAATCAT-3' . Sequencing was performed using dye termination sequencing protocol . The reactions were analysed on a 373A Fluorescent Automated Sequencer (Applied Bio-systems , Perkin Elmer) .

Results and discussion Collections of *Iris dichotoma* from the grassland steppe were cultivated at the Botanical Garden . They ranged in water content from 77 .5 to 81 .8% and had a water deficit from 13 to 15% . The average rate of transpiration for *Iris dichotoma* in the grassland steppe was 0 .46 g/g/h compared to 4 .3 g/g/h in the Botanical Garden . Curves were developed for the daily and seasonal course of transpiration of *Iris dichotoma* growing in the Botanical Garden and the grassland steppe .

Conclusions The rate of transpiration of *Iris dichotoma* grown in the Botanical Garden was 9 .3 times greater than *Iris dichotoma* in the grassland steppe . Plants growing in the Botanical Garden had several times greater numbers of reproductive shoots per plant and had 19 times more flowers per plant than plants from the grassland steppe . DNA sequence data of *Iris dichotoma* and Iris bungei have been submitted to Gen-bank . (Lkhagvasuren S . DNA sequence of *Iris dichotoma* Pall . , DNA data bank number *AB 077365)*

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