

Plant Genomics 2019 : Establishment of regeneration protocol for Mongolian subendemic species *Oxytropis grubovii* Ulzij

Abstract:

One of the Mongolian subendemic species, *Oxytropis grubovii* Ulzij., grows as a perennial woody shrub and registered in endangered plant list of Mongolia. It distributed in Mongolia gobi desert area with high content of underground wealth. Even it could be regenerated by seed and vegetative organs; it did not produce the seeds during last decade due to the lower rain-falling. Plants growing in a part of the gobi, desert ecosystem drastically damaged by off-road vehicles, mining and pollution depend on mining activity. Since, these native plants are endangered and difficult to propagate by conventional method, conservation and mass propagation in in-vitro condition can play an important role in the rehabilitation of mining site. In this study, our research group established tissue culture system for *Oxytropis grubovii* Ulzij. Contamination was highly occurred during the in vitro culture and general reagents for sterilization could not work on that woody shrubs. Washing in PPM solution together with supplemental PPM in growth medium was reduced the contamination rate until 60%. In the process of shoot development, medium with combinations of BAP and NAA, Kin and NAA, or BAP, TDZ and 2iP separately investigated step by step. In a result, shoots were effectively regenerated on the medium with 2iP (2.0 mg/l) and produced 15 shoots per explants within four weeks. For rooting of these proliferated shoots, only auxins of IBA, IAA, NAA or combinations of 2iP with IBA tested consistently and results revealed that roots were induced on the medium containing IBA and IAA (2.0mg/l) with 20-30 percent. Produced root's branching in IBA supplemented medium were higher, however, root length was too short. Whereas, roots were effectively elongated when combining IBA with 2iP (5.0:1.0mg/l) on the medium and root induction percentage were about 50percents. As indicated in these results, shoot and roots of *Oxytropis grubovii* Ulzij. Can be regenerate in in vitro condition and this regeneration protocol is first time developed for the species. Preliminary test for ex vitro adaptation also executed a time, however, results not identified yet. Regeneration steps of *Oxytropis grubovii* Ulzij. A. Proliferated shoots on the medium supplemented 2iP, B. IBA effect for shorter root generation, C. Combination of 2iP and IBA induced longer and actively elongated roots, D. Adaptation in ex vitro condition, E. Naturally growing plant.

Biography:

Bolortuya Ulziibat works as a researcher in the Plant biotechnology laboratory of Institute of General and Experimental Biology, Mongolian Academy of Sciences. She graduated her Ph.D course in Tohoku University, Japan in 2016. During her doctoral course, she conducted the research work to identify cold tolerance gene of Yunnan landrace 'Lijiangxintuanheigu' in rice during booting stage. Her current research work is tissue culture system development and gene identification for rhizome development of Mongolian very rare, and endangered plants used in traditional and modern medicine *A. calamus* through the transcriptome analysis. She is also working on the project that identifies the possibility to establish micropropagation protocol for rare and endangered plant species in the mining field and to apply them for rehabilitation after mining exploitation.

Note: This work is partly presented at 5th Edition of International Conference on Plant Genomics (June 13-14, 2019 Berlin, Germany)