

## 건조 처리하에서 산벚나무와 백엽송 묘목의 형태적 · 생리적 비교

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## Comparisons of Drought Tolerance between *Prunus sargentii* and *Larix kaempferi* Seedlings using Morphological and Physiological Parameters

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Morphological and physiological characteristics of two of the most popular plantation tree species in Korea, Sargent cherry (*Prunus sargentii*) and Japanese larch (*Larix kaempferi*), were examined for their drought tolerance. Three different irrigation regimes; control (CT; 100% precipitation (P)), light drought (LD; 40% reduction of P), and heavy drought (HD; 80% reduction of P) were applied at the experimental site at Mt. Giri, Republic of Korea. For morphological responses, both species significantly decreased their leaf sizes in drought conditions, however, Sargent cherry and Japanese larch reduced leaf width and length, respectively. Leaf mass area (LMA, g m<sup>-2</sup>) increased both species (maximum P = 0.001). For physiological responses, drought stress significantly decreased maximum photosynthesis rate (A<sub>max</sub>), electron transfer rate (J<sub>max</sub>) and stomatal conductance (G<sub>s</sub>) at A<sub>max</sub> for both species (maximum P = 0.011, 0.017 and 0.014, respectively), but maximum carboxylation rate (V<sub>cmax</sub>) was not different among treatments (minimum P = 0.062). Drought significantly reduced leaf water potentials (Ψ<sub>PD</sub> and Ψ<sub>MD</sub>) and transpiration in Sargent cherry but not significantly in Japanese larch. Thus, Japanese larch greater resilient of morphological and other physiological traits and more appropriate species than Sargent cherry for more frequent drought stress conditions.

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