

A COMPARATIVE STUDY ON THE PHYSICAL AND MECHANICAL PROPERTIES OF DAHURIAN LARCH AND JAPANESE LARCH GROWN IN KOREA

SEONG HYUN KIM, DO HOON KIM, JAE IK JO, JONG HO KIM, SEUNG HWAN LEE
JUNG KEE CHOI, NAM HUN KIM
KANGWON NATIONAL UNIVERSITY
REPUBLIC OF KOREA

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ABSTRACT

To compare the wood quality of Dahurian larch and Japanese larch growing in Korea, the physical and mechanical properties were examined using the Korean standards. The proportion of heartwood was 82% and 72% in Dahurian and Japanese larch, respectively. The percentage of latewood was 42% in Dahurian larch and 35% in Japanese larch. The growth ring width of Dahurian larch was narrower than that of Japanese larch. Dahurian larch showed about 20% higher green moisture content compare to Japanese larch wood. Density and shrinkage of Dahurian larch were higher than Japanese larch. Axial compression strength, young's modulus in compression, and shearing strength in heartwood of Dahurian larch were 11 MPa, 686 MPa, and 2.3 MPa, respectively, showing higher value than Japanese larch. The hardness was in the range of 13.8–38.7 MPa in Dahurian larch and 17.7–48.4 MPa in Japanese larch. The compression strength parallel to the grain and shearing strength in both species were significantly correlated with oven-dried density. Besides, the hardness in Dahurian larch was significantly correlated with latewood percentage and oven-dried density. In conclusion, the differences in the properties of both species were revealed and the results can be used for quality indices of both wood species.

KEYWORDS: Dahurian larch, Japanese larch, physical and mechanical properties, quality indices, wood quality.

