

研究报告

# 林窗对川西亚高山岷江冷杉幼苗生物量及其分配格局的影响

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**摘要** 采用样带法调查了川西亚高山原始岷江冷杉林林窗和林冠下岷江冷杉幼苗( $H \leq 100$  cm)的密度、高度、基径和各构件生物量, 分析了各构件生物量间的相关性. 结果表明: 林窗与林冠下幼苗密度分别为12 903和2 017株· $\text{hm}^{-2}$ ; 平均高度分别是26.6和24.3 cm, 差异显著; 平均基径分别为4.97和5.13 mm, 差异不显著. 林窗内各龄级幼苗的生物量与林冠下同龄级幼苗的生物量之间差异不显著. 林窗对不同龄级幼苗各构件生物量积累的影响不同, 林窗内幼苗枝干生物量比在12年达到最大(1.54), 随后其比值维持在0.69左右; 林冠下幼苗在15年后(含15年), 枝条生物量大于主干生物量. 生长在林窗和林冠环境的幼苗单株总生物量、叶生物量、茎生物量、地上生物量和根生物量与幼苗基径的平方( $D^2$ )和苗高( $H$ )的乘积有显著的线性关系. 林窗与林冠下幼苗各构件生物量之间有显著的正相关关系.

**关键词** [岷江冷杉](#) [幼苗](#) [生物量](#) [分配格局](#) [亚高山](#) [川西](#)

分类号

## Effects of forest canopy gap on *Abies faxoniana* seedling's biomass and its allocation in subalpine coniferous forest of West Sichuan

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### Abstract

By the method of strip transect sampling, the density, height, basal diameter, and components biomass of *Abies faxoniana* seedlings ( $H \leq 100$  cm) lived in the forest gap (FG) and under the forest canopy (FC) of subalpine natural coniferous forest in West Sichuan were investigated, and the relationships among different components biomass were analyzed. The results indicated that the density and average height ( $H$ ) of *A. faxoniana* seedlings were significantly different in FG and under FC, with the values being 12 903 and 2 017 per hectare, and 26.6 cm and 24.3 cm, respectively, while no significant differences were found in average basal diameter ( $D$ ) and biomass. The biomass allocation in seedling's components was markedly affected by forest gap. In FG, the biomass ratio of branch to trunk (BRBT) reached the maximum (1.54) at 12th year, and then, declined and fluctuated at 0.69. Under FC, the BRBT was increased with seedlings growth, and exceeded 1.0 at about 15th year. The total biomass and the biomass of leaf, stem, shoot and root grown in FG and under FC were significantly linearly correlated with  $D^2H$ . There were significant positive correlations among the biomass of different seedling's components.

**Key words** [Abies faxoniana](#) [seedling](#) [biomass](#) [allocation pattern](#) [subalpine](#) [West Sichuan](#)

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