# 不同激素处理对青钱柳嫩枝扦插生根及内源激素含量的影响

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**摘要：**【目的】青钱柳属胡桃科青钱柳属，是我国特有的单属种植物，属于珍稀树种，主要分布于江西、安徽、福建、广西等省。但是，青钱柳存在扦插难生根的问题，为提高青钱柳的生根质量和生根率，设计了不同的激素处理，对青钱柳插条生根和生长的情况进行分析讨论。【方法】试验采用广西金钟山的优良家系平茬苗的当年生萌条为材料，设置了 6 种激素配方处理（IR1#、IR2#、IR3#、SR2#、SR3#、ABT-1（CK）），于 7 月 13 日（第 0 d）、8 月 3 日（第 20 d）、8 月 23 日（第 40 d），即每隔 20 天取样分析，测定内源激素（IAA、IBA、ABA、tZR、$GA_1$、$GA_3$）的含量。每次取 6 根生长情况大致相同的插穗，用蒸馏水洗净，保存在-70℃的冰箱中，于 9 月 13 日（第 60d）统计扦插生根率。【结果】通过观察插穗的生根状况与内源激素含量的动态变化，发现使用外源激素处理青钱柳嫩枝扦插能显著提高插穗的生根质量。SR 系列处理能显著增加生根数，其中 SR2 处理的生根数最多。IR 系列处理对于生根率和根系长度有促进作用，对照组 ABT-1 处理的生根率仅 10%；不同激素处理的青钱柳嫩枝扦插插穗内源激素的含量存在显著差异，随扦插时间的延长，插穗内吲哚乙酸(IAA)的含量逐渐减少，赤霉素($GA_1$)、脱落酸(ABA)的含量逐渐增加，吲哚丁酸(IBA)、赤霉素($GA_3$)的含量呈现出“先增后降”的规律，反式玉米素核苷(tZR)的含量表现出“先降后升”的趋势。【结论】总体来看，本试验用 IR2、IR3、SR3 处理的青钱柳插穗，有效的提高了插穗的生根率及促进了根系长度，激素含量有助于不定根的形成，增加了生根数。多样的激素处理很大程度促进青钱柳的生根率与移栽成活率，加快青钱柳资源的产业化进程。

**关键词：**青钱柳；嫩枝扦插；生根率；激素

# Effects of Different Hormone Treatments on Rooting and Endogenous Hormone of *Cyclocarya paliurus* by Softwood Cutting

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**Abstract:**【Objective】*Cyclocarya paliurus*, a rare tree species, is endemic to China and mainly distributed in Jiangxi, Anhui, Fujian, Guangxi and other provinces.However, *Cyclocarya paliurus* cuttings are difficult to root. In order to improve the rooting quality and rooting rate of *Cyclocarya paliurus*, different hormone treatments have been designed to analyze and discuss the rooting and growth of its cuttings.【Method】The experiment set up six kinds of hormones( IR1#、IR2#、IR3#、SR2#、SR3#、ABT-1（CK）)to treat the current year sprout shoots of the superior family in Jinzhongshan, Guangxi.The contents of endogenous hormones (IAA, IBA, ABA, TZR, GA1 and GA3) were determined on July 13 (0d), August 3 (20d) and August 23 (40d).Take 6 cuttings with roughly the same growth each time,washed with distilled water and stored in a refrigerator at -70℃.The rooting rate of cuttings was counted on September 13 (60d).【Results】By observing the rooting status of cuttings and the dynamic changes of endogenous hormone contents, it was found that the use of exogenous hormones to treat cuttings can significantly

improve the rooting qualitys.The series of SR treatments could significantly increase the number of rooting, and SR2 treatments had the highest number of rooting. The rooting rate and root length were promoted by IR treatments. The rooting rate of ABT-1 treatments was only 10%.There were significant differences in endogenous hormone contents in cuttings of *Cyclocarya paliurus* with different hormone treatments. With the extension of cutting time, the content of IAA decreased generally, while the content of $GA_1$ and ABA increased. The content of IBA and $GA_3$ showed a law of "first increasing and then decreasing", while the content of tZR showed a trend of "first decreasing and then increasing".【Conclusion】In general, the cuttings of *Cyclocarya sylvestris* treated with IR2, IR3, and SR3 effectively increased the rooting rate of the cuttings and promoted the length of the root system. The hormone content contributed to the formation of adventitious roots and increased the number of roots.Various hormone treatments greatly promoted the rooting rate and transplanting survival rate of *Cyclocarya sylvestris* and accelerated the industrialization process of its resources.

**Key words:** *Cyclocarya paliurus* ; softwood cottage ; rooting rate ; phytohormone