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诱导子Ag⁺、La³⁺对红柳不定根生长及红柳毒苷积累影响的研究

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中文摘要:目的:考察红柳不定根生长特性以及次生产物红柳毒苷积累特性,并在此基础上考察Ag⁺、La³⁺ 2种诱导子对红柳不定根生长及红柳毒苷积累的影响。方法:每4 d对红柳不定根进行取样,测量干重及红柳毒苷含量,绘制红柳不定根生长及红柳毒苷积累曲线,在不定根生长稳定期加入不同浓度的诱导子Ag⁺、La³⁺以考察适宜红柳毒苷生物合成的最佳浓度,并将此浓度的诱导子添加到红柳不定根不同生长阶段以考察诱导子对不定根生长以及对红柳毒苷生物合成的影响。结果:红柳不定根生长特性呈典型S型生长曲线,其与红柳毒苷的代谢呈半偶联关系。诱导子Ag⁺、La³⁺诱导红柳毒苷生物合成的最适浓度均为0.05 mmol·L⁻¹,且在指数生长期末期加入这2种诱导子,诱导红柳毒苷生物合成效果最好。结论:红柳不定根生长与次生产物红柳毒苷积累呈半偶联关系,诱导子Ag⁺和La³⁺的添加浓度与添加时间能明显的影响红柳不定根生长与红柳毒苷的生物合成。

中文关键词:红柳 不定根 生长特性 红柳毒苷 诱导子

Affect of Ag⁺ and La³⁺ elicitors on growth and accumulation of adventitious roots of *Periploca sepium*

Abstract:Objective: To study the characteristics of the growth and periplocin accumulation of the adventitious roots of *Periploca sepium*, and on this basis, study the effect of Ag⁺ and La³⁺ elicitors on the growth and periplocin accumulation of the adventitious roots. Method: The adventitious roots were sampled every four days, and the dry weight and the contents of the periplocin were measured. The curves of the growth and periplocin accumulation of the roots were plotted. The Ag⁺ and La³⁺ elicitors with different concentrations were added to the medium when the adventitious roots grew in the stable phase to study the optimal concentration which was good to synthesize the periplocin. Besides, the optimal concentration of Ag⁺ and La³⁺ elicitors was added to the different growth phases to study the effect of the elicitors on the growth and periplocin synthesis of adventitious roots. Result: The characteristics of the growth of adventitious roots of *P. sepium* showed a typical growth S-Curve, which displayed a half-coupling relationship with the metabolism of periplocin. The optimal concentrations of Ag⁺ and La³⁺ elicitors were both 0.05 mmol·L⁻¹. Besides, it was the best period for the Ag⁺ and La³⁺ elicitors to elicit the synthesis of periplocin when in the terminally exponential phase. Conclusion: The growth of adventitious roots and the accumulation of periplocin show a half-coupling relationship. Besides, the concentration and additive time of Ag⁺ and La³⁺ elicitors obviously influences the growth of adventitious roots and synthesis of periplocin.

keywords: *Periploca sepium* adventitious root growth characteristic periplocin elicitor

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