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中文标题 检索 跨刊检索

不同光质对丹参生长及有效成分积累和 相关酶活性的影响

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中文摘要:目的: 以丹参幼苗为材料, 研究不同光质(白光、蓝光、红光)对其生长、有效成分积累和相关酶活性的影响。方法: 不同光质处理丹参幼苗, 测定相关指标, 结合方差统计方法进行分析比较。结果: 丹参生长及有效成分积累受不同光色影响显著, 与同等PAR的白光相比较, 增加蓝光(WB)处理使植株株高显著降低, 增加红光(WR)处理使丹参根长、根直径、根鲜重和干重分别显著增加。丹酚酸B含量在补充蓝光与补充红光后均显著提高, 而丹参酮II_A含量未受补充光质显著影响; 蓝光处理下氧化物歧化酶(SOD)、过氧化物酶(POD)、苯丙氨酸解氨酶(PAL)、酪氨酸氨基转移酶(TAT)和多酚氧化酶(PPO)活性显著提高; 红光处理下过氧化物酶(POD)、酪氨酸氨基转移酶(TAT)和多酚氧化酶(PPO)活性显著提高。同时实验证明, 种子直播幼苗比根栽苗对光色反应敏感。**结论:** 补充红光能够显著促进丹参根系的生长, 其有效成分丹酚酸B含量在补充蓝光与补充红光后显著提高, 补充蓝光与补充红光能够显著提高丹参TAT和PPO活性。

中文关键词: 丹参 蓝光 红光 有效成分 酶活性

Effects of different light quality on growth, active ingredients and enzymes activities of *Salvia miltiorrhiza*

Abstract: Objective: This study aimed to investigate the effects of different light quality on the growth, accumulation of active ingredients and enzymes activities of *Salvia miltiorrhiza*. Method: The seedlings of *S. miltiorrhiza* were treated by different light quality, and relative parameters were measured. The data was statistically processed. Result: Plant height was significantly decreased with supplemental blue light (WB), and the root length, root diameter, root fresh weight and root dry weight were significantly increased with supplemental red light (WR). Salvianolic acid B concentration in *S. miltiorrhiza* was highly increased by supplemental blue and red light, but shanshimonolide A concentration was not significantly affected by supplemental blue and red light. Enzymes activities of SOD, POD, PAL, TAT and PPO in *S. miltiorrhiza* were significant increased by supplemental blue light, and enzymes activities of POD, TAT and PPO were significant increased by supplemental red light. Conclusion: The root growth of *S. miltiorrhiza* was greatly promoted by supplemental red light (WR). Salvianolic acid B concentration in *S. miltiorrhiza* was highly increased by supplemental blue and red light. Enzymes activities of TAT and PPO in *S. miltiorrhiza* were significant increased by supplemental blue light and red light.

keywords: *Salvia miltiorrhiza* blue light red light active ingredients enzymes activities

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