

硒、锌及其交互作用对夏茶多酚氧化酶活性的影响

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Effects of Se, Zn and their interaction on polyphenol oxidase activity of tea leaves in summer season

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摘要 通过配合喷施不同浓度亚硒酸钠 (Na_2SeO_3) 和醋酸锌 $[(\text{CH}_3\text{COO})_2\text{Zn}\cdot 2\text{H}_2\text{O}]$, 研究硒 (Se)、锌 (Zn) 及硒锌交互 (Se-Zn) 作用对夏茶叶片多酚氧化酶 (PPO) 活性的影响。结果表明, 单施 Se (100~200 $\mu\text{g}/\text{mL}$) 和单施 Zn (0.4%~0.8%) 处理, 茶叶叶片 PPO 活性相对较高; 高浓度 Se (>400 $\mu\text{g}/\text{mL}$) 和 Zn (>1.2%) 处理对 PPO 活性的提高效应不明显, 甚至有一定的抑制作用。同一 Se、Zn 处理喷施 16 d 后, 茶叶叶片 PPO 活性相对较高。中浓度 Zn (0.4%~0.8%) 与中浓度 Se (100~200 $\mu\text{g}/\text{mL}$) 配合喷施, 夏茶叶片多酚氧化酶活性较高; 而高浓度的硒锌配施对 PPO 活性无明显促进效应。同一配施处理, 喷施 16 d 后 PPO 活性变化趋于稳定, 且比喷施 8 d 活性增幅较大。高浓度的 Zn 与不同浓度的 Se 配施, PPO 活性的时间效应不甚明显, 而低中浓度 Zn 与不同浓度 Se 配合喷施后, PPO 活性的时间效应明显。

关键词: 茶叶 多酚氧化酶 硒 锌 交互作用 茶叶 多酚氧化酶 硒 锌 交互作用**Abstract:**

Different levels of Na_2SeO_3 (0, 100, 200 and 400 $\mu\text{g}/\text{mL}$) and $(\text{CH}_3\text{COO})_2\text{Zn}\cdot 2\text{H}_2\text{O}$ (0, 0.4%, 0.8% and 1.2%) was applied by foliar spraying to determine the effects of Se, Zn and their interaction on polyphenol oxidase (PPO) activity of tea leaves in summer season. The result showed that: (1) The PPO activity of tea leaves was higher when spraying apply Se at 100~200 $\mu\text{g}/\text{mL}$ and Zn was 0.4%~0.8% compared to other treatments. Applying high-concentration of Se (>400 $\mu\text{g}/\text{mL}$) or Zn (>1.2%) alone did not significantly improve PPO activity. Higher PPO activity was observed at 16 days after Se or Zn spraying application. (2) Combined applying middle-concentration of Se (100~200 $\mu\text{g}/\text{mL}$) and Zn (0.4%~0.8%) increased PPO activity, but combine applying high-concentration of Se and Zn had no significant effects on PPO activity. The PPO activity after 16 days of spraying became stable. When applying high concentration of Zn combined with different concentration of Se, the temporal effect on PPO activity was not significant, but when low concentration of Zn was combined with different concentrations of Se, the temporal effect on PPO activity was significant.

Keywords:

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