

研究报告

多氯联苯对桐花树幼苗生长及膜保护酶系统的影响

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摘要 通过盆栽实验, 研究了不同浓度(180、900、1 800和2 700 $\mu\text{g} \cdot \text{kg}^{-1}$)多氯联苯(PCBs)对红树植物桐花树幼苗生长、叶绿素含量、膜质过氧化产物丙二醛(MDA)以及膜保护酶系统的影响. 结果表明: PCBs对桐花树幼苗的生长有一定的促进作用, 随着PCBs浓度的提高, 桐花树幼苗的茎高、茎径和茎体积均呈升高趋势; 在试验PCBs浓度范围内, 桐花树幼苗叶片能保持相对正常的叶绿素水平和相对稳定的叶绿素a/b值, 叶绿素a、叶绿素b和叶绿素a+b含量虽然有所降低, 但均未低于对照的75%; 叶绿素a/b值有所升高, 但均未超过对照的10%. 随着PCBs浓度的提高, 桐花树幼苗叶片SOD活性呈单峰曲线变化, 而POD活性和MDA含量呈单谷曲线变化. 红树植物桐花树可通过生理生化机制适应一定浓度的PCBs污染, 对PCBs有较强的耐受性和适应性, 可用于PCBs污染的植物修复.

关键词 [红树植物](#) [桐花树](#) [多氯联苯](#) [膜质过氧化](#) [膜保护酶系统](#)

分类号

Effects of PCBs on *Aegiceras corniculatum* seedlings growth and membrane protective enzyme system

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Abstract

With pot experiment, this paper studied the effects of PCBs (0, 180, 900, 1 800 and 2 700 $\mu\text{g} \cdot \text{kg}^{-1}$) on the seedlings growth and the leaves chlorophyll content, MDA content, and membrane protective enzyme system of *Aegiceras corniculatum*. The results showed that PCBs had definite stimulative effects on the seedlings growth. The stem height, basal stem diameter, and stem volume were all increased with increasing PCBs concentration. Within the test range of PCBs, the chlorophyll content and chlorophyll a/b ratio maintained at a relatively stable and normal level. The decrement of chlorophyll content and the increment of chlorophyll a/b ratio were less than 25% and 10% of the control, respectively. With increasing PCBs concentration, SOD activity increased first and decreased then, while POD activity and MDA content were in adverse. It was suggested that *A. corniculatum* could endure and adapt definite concentrations of PCBs through physiological and biochemical mechanisms, being available to the phytoremediation of PCBs pollution.

Key words [mangrove](#) [Aegiceras corniculatum](#) [PCBs](#) [membrane peroxidation](#) [membrane protective enzyme system](#)

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