

J. Lake Sci. (湖泊科学), 2007, 19(2):118-124

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铜绿微囊藻在竞争生长条件下对氧化还原电位降低的响应

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张民^{1,2}, 孔繁翔¹, 史小丽¹, 邢鹏^{1,2}, 谭啸¹

(1: 中国科学院南京地理与湖泊研究所, 南京 210008)

(2: 中国科学院研究生院, 北京 100039)

摘要: 水体中氧化还原电位的变化会对藻类生长和竞争产生直接或间接的影响. 本文采用单种培养和混合培养的方式, 研究了在铜绿微囊藻 (*Microcystis aeruginosa*) 与斜生栅藻 (*Scenedesmus obliquus*) 竞争生长过程中氧化还原电位降低对铜绿微囊藻优势形成的影响, 同时测定了铜绿微囊藻生理和形态的变化. 结果表明: 在单种培养条件下, 铜绿微囊藻的生长速率明显高于栅藻, 降低氧化还原电位对两种藻的生长速率没有影响; 在混合培养条件下, 两种藻的生长均受到了抑制, 但降低氧化还原电位却明显提高了铜绿微囊藻的生长速率, 而降低了斜生栅藻的生长速率, 说明铜绿微囊藻的竞争能力得到了加强, 斜生栅藻的竞争能力有所削弱; 同时试验也发现在竞争生长的条件下, 培养基氧化还原电位的降低诱导了铜绿微囊藻细胞体积变大, 酯酶活性增强以及叶绿素荧光强度增加, 这些生理参数的改变可能是铜绿微囊藻在环境中氧化还原电位降低时竞争能力得以增强的重要原因.

关键词: 铜绿微囊藻; 斜生栅藻; 混合培养; 竞争; 氧化还原电位

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