

## 环境水体微囊藻毒素微生物降解技术研究进展

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## Microbial degradation of microcystins in water environment: A review.

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**摘要** 湖库水体富营养化及其产生的藻毒素污染已对生态环境和人类健康构成极大威胁, 而目前常规水污染控制技术存在一定的局限性, 因此水环境中藻毒素处理新工艺亟待研发. 鉴于环境水体中的微囊藻毒素可被微生物降解为无毒或低毒的中间产物, 本文综述了微囊藻毒素的降解菌株、生物降解过程影响因素与机理、降解产物及其结构特性等, 总结了目前微囊藻毒素降解菌株在水环境修复中的应用, 并对今后微生物降解微囊藻毒素的研究方向进行了展望, 以期为解决我国日益严峻的湖库水体藻毒素污染和饮用水安全问题提供技术思路.

**关键词:** 微囊藻毒素 微生物降解 降解机理 富营养化 饮用水安全

**Abstract:** Lake and reservoir's eutrophication and its produced microcystins (MCs) have enormous threats to ecological environment and human health. Because the conventional water pollution control techniques have definite limitations, it's quite urgent to develop new technique to remove the MCs from water environment. MCs can be effectively degraded by specific microbes, and its intermediate and terminal products are non-toxic or low-toxic. This paper summarized the MCs-degrading microbial strains, biodegradation processes, mechanisms, and affecting factors, degraded products and their structural characteristics, and the applications of MCs-degrading microbial strains in water environment restoration. The further research directions were also proposed. It was hoped that this review could provide technical ideas for restoring MCs-polluted lakes and reservoirs and ensuring drinking water safety in China.

**Key words:** microcystins microbial degradation degradation mechanism eutrophication drinking water safety

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