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过氧化氢对铜绿微囊藻的损伤效应研究 

### Damaging effects of hydrogen peroxide on *Microcystis aeruginosa*

关键词: [H<sub>2</sub>O<sub>2</sub>](#) [铜绿微囊藻](#) [损伤效应](#)

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摘要: 采用室内培养的方法研究了不同浓度H<sub>2</sub>O<sub>2</sub>对铜绿微囊藻(*Microcystis aeruginosa*)藻细胞的损伤效应.结果表明,H<sub>2</sub>O<sub>2</sub>浓度越大,对藻细胞的毒害作用越大.24 h之后,铜绿微囊藻藻细胞数、叶绿素a、类胡萝卜素和蛋白质含量及总抗氧化能力(T-AOC)都快速下降,而MDA含量显著增加,同时培养基中的H<sub>2</sub>O<sub>2</sub>含量也迅速降低;随着处理时间的增加,毒性效应逐渐增强;72 h之后,藻细胞各指标值都降得很低,MDA含量也增加到最大,培养基中H<sub>2</sub>O<sub>2</sub>也逐渐被消耗和分解,藻细胞的损伤效应也达到最大.其中,H<sub>2</sub>O<sub>2</sub>浓度为50 mg · L<sup>-1</sup>时,能够有效的去除藻细胞,并且对藻细胞的生理指标及抗氧化能力都有很强的损伤效应.

**Abstract:** This study used indoor culture method to investigate the damaging effect of hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) on *Microcystis aeruginosa*. Results showed that the toxic effect increased with increasing H<sub>2</sub>O<sub>2</sub> concentrations. The number of algal cells, the content of chlorophyll a, carotenoid and protein, and T-AOC of *Microcystis aeruginosa* reduced rapidly after 24 hours, while the content of MDA increased significantly. Meanwhile, the H<sub>2</sub>O<sub>2</sub> content in culture medium also reduced rapidly. Toxic effect also increased gradually with the processing time. The value of each index reduced to a very low level after 72 hours, the content of MDA increased to the maximum, and the H<sub>2</sub>O<sub>2</sub> was consumed and decomposed gradually, implying that a maximum damage effect of algal cells was achieved. At 50 mg · L<sup>-1</sup>, H<sub>2</sub>O<sub>2</sub> can effectively remove algal cells, and exert a strong damaging effect on the physiological indexes and anti-oxidizing capacity of algal.

**Key words:** [hydrogen peroxide](#) [Microcystis aeruginosa](#) [damaging effects](#)

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