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络合硫酸铜除藻剂应急治理水华对水质及鱼类的影响

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Effects on Water Quality and Fishes of Copper Sulfate Complex Applied as Algaecide for Emergency Control of Algae Bloom

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摘要 在水华爆发严重时期，投加络合硫酸铜除藻剂对富营养化池塘进行应急治理，考察了投药后水体的水质动态变化及非洲鲫鱼对铜的富集作用。结果表明，水华在投药后得到了有效控制，ρ（叶绿素a）从298.98降至40.71 μg · L^{-1}，浊度从14.45降至5.70 NTU，投药期间水体ρ（Cu^{2+})低于0.3 mg · L^{-1}；停止投药后10 d藻类生物量开始上升，叶绿素a浓度从40.71上升至125.29 μg · L^{-1}，浊度从5.70上升至12.15 NTU，22 d后水体ρ（Cu^{2+})低于检出限。非洲鲫鱼各组织对铜的富集能力从大到小依次为肝脏（512.50 mg · L^{-1}）、肌肉，鱼肉中未发现明显的铜富集，停止投药后鱼鳃中铜富集量明显降低。

关键词： 除藻剂 应急治理 水质动态变化 水华 生物富集

Abstract： Copper sulfate complex was appiled as algaecide for emergency control of algae bloom in eutrophicated ponds.Effects of the application on water quality and Cu enrichment in *Tilapia* sp. were studied.Results show that algae bloom was effectively put under control after the application,with chlorophyll a concentration falling from 298.98 to 40.71 μg · L^{-1} and turbidity from 14.45 to 5.70 NTU simultaneously.During the period of the treatment,the concentration of copper ions in water was lower than 0.3 mg · L^{-1} ;Ten days after the treatment,the algae began to in crease in biomass,bringing up chlorophyll a concentration from 40.71 to 125.29 μg · L^{-1} and turbidity from 5.70 to 12.15 NTU,and 22 days after the treatment,Cu^{2+} concentration in the water fell below the detetable limit.Various organs of *Tilapia* sp. followed the order:liver(512.50 mg · L^{-1})>gill(17.00 mg · L^{-1})>muscle in Cu enrichment ability.No obvious Cu accumulation was found in fish meat.In addition after the treatment,Cu accumulation in gills of the fish declined significantly.

Keywords： algaecide emergency tretment dynamics of water quality algae bloom bioaccumulation

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