

低温工厂化养殖水体氨氮处理微生物的初步研究

Preliminary study on ammonia nitrogen treatment of microorganism in industrialized culture water at cold temperature

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中文摘要:

为了研究低温环境下工厂化养殖水体氨氮处理微生物, 用平板菌落计数法和最大几率数法对处理养殖水体的生物滤池中的微生物数量进行了跟踪检测, 同时测定实验组和对照组养殖水体的理化性质。结果显示在实验过程中, 硝化细菌和亚硝化细菌的数量持续上升, 后期达到稳定; 初期系统中没有反硝化细菌, 后期数量开始逐渐增加。实验组与对照组的养殖水体的氨氮、硝酸盐和亚硝酸盐浓度的测定结果证明了生物滤池中的硝化—反硝化系统在发挥作用。实验表明经过低温环境的驯化和诱导, 在12℃的低温条件下, 微生物处理仍然是工厂化养殖水体中氨氮的有效处理手段。实验验证了在冷水鱼工厂化低温养殖中使用生物滤池处理氨氮的可行性。

英文摘要:

To study the microorganism for treating ammonia nitrogen in industrialized culture water at cold temperature, plate count method and most probable number were applied for quantitative detection of microorganism of the biological bead filter for treating ammonia nitrogen in a recycle culture system. At the same time, physical and chemical features of experimental team and controlled team were measured. The result showed that the amounts of nitrobacteria and nitrosobacteria increased continuously and they reached a stable level at anaphase. There were no denitrifying bacteria at the beginning of the experiment; its amount began to increase at anaphase. Comparing the concentrations of ammonia nitrogen, nitrate and nitrite of experimental team with that of controlled team, we can conclude that the biological bead filter for treating ammonia nitrogen runs well at 12℃. The experiment results indicate that the microorganism treatment, which is domesticated and induced at low temperature condition, is still a feasible approach to treat ammonia nitrogen in industrialized rainbow trout culture water at 12℃, which was deviated from the optimum microorganism growth temperature.

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