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底泥曝气对城市污染河道内源氮变化过程的影响

The effect on the variation process of internal nitrogen under aerating to the sediment condition of urban polluted river

关键词: [底泥曝气](#) [河道](#) [内源氮](#) [有机氮](#) [无机氮](#) [变化过程](#)

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摘要: 以城市重污染河道上覆水和沉积物为研究对象,采用模拟实验方法,探讨了底泥曝气对城市污染河道内源氮变化过程的影响.结果表明:底泥曝气促进内源氮去除和有机质分解,泥水系统氮素去除率比对照组高出5%,对照组有机质升高35.1%,而底泥曝气组有机质却基本维持不变;底泥曝气促进氨氮的迁移与转化,曝气阶段上覆水、表层底泥间隙水和吸附态氨氮浓度分别降低了99.5%、94.4%和75.6%;底泥曝气时有机质分解促使有机氮浓度升高,曝气结束后有机氮的矿化作用与有机质的分解作用共同影响内源无机氮的含量;底泥曝气直接改变了底泥的理化性质,继而在一定程度上改变底泥氮素的赋存情况,含水率与表层间隙水和底泥的有机氮、无机氮均呈显著相关,表层无机氮与亚铁显著相关,内源氮变化与有机质无显著相关性.

Abstract: Using indoor simulation method, the variation process of internal nitrogen fraction was investigated under aerating to sediment condition. The heavy-polluted surface sediment of urban river was used as material in the study. The results showed that the removal of endogenous nitrogen and the decomposition of organic matter were promoted under aerating to sediment condition. The removal rate of sediment-water system nitrogen was 5% higher than the control group. The organic matter of the control group increased by 35.1% during the experiment, while the organic matter of aerating to sediment group is essentially unchanged. Aerating to sediment condition promoted the migration and transformation of the ammonia. The ammonia concentration of the overlying water, pore-water of surface sediment and adsorbed of sediment decreased by 99.5%, 94.4% and 75.6% under aerating to sediment condition. The concentration of organic nitrogen was promoted by decomposition of organic matter when aerating to the sediment, while the concentration of inorganic nitrogen was inflected by both mineralization of organic nitrogen and decomposition of organic matter. The aeration changed the physicochemical property of sediment and thus the storage condition of internal nitrogen. Moisture rate was significantly correlated with both organic nitrogen and inorganic nitrogen of surface pore-water and sediment, while Fe (II) had a significantly relationship with inorganic nitrogen of surface sediment. However, there was no significant relationship between organic matter and internal nitrogen.

Key words: [aerating to the sediment](#) [river](#) [internal nitrogen](#) [organic nitrogen](#) [inorganic nitrogen](#) [variation process](#)

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