

农业资源环境科学

微污染源人工湿地处理效果与植物作用分析

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摘要:

采用水平流人工湿地系统对沉砂后的微污染源水进行了预处理试验, 考察了处理效能与湿地植物作用。结果表明: 水平流人工湿地系统对COD, TP, TN和NH₄⁺-N平均去除率分别为49.89%, 50.44%, 53.41%和48.45%; 湿地植物作用研究表明: 一方面, 植物通过吸收直接去除氮、磷, 在生长季节作用更明显。而且在床体前部植物生长效果略好于后部, 对氮、磷吸收也略高于后部。另一方面植物根系可以过滤、截留去除水中污染物, 并为微生物提供附着表面, 从而发挥了微生物的降解作用, 这在人工湿地系统起重要的作用。

关键词: 潜流人工湿地 微污染源 处理效果 植物作用

Analysis on Efficiency of constructed wetland in treatment Micro-polluted Water Resource and Effect of Plants

Abstract:

Horizontal flow constructed wetland system was used to treat the micro-polluted water resource after sedimentation. The contamination removal efficiency and effect of plants in the wetland treatment system were studied, The results of treatment experiment showed that the average removal efficiencies of chemical oxygen demand(COD), total phosphorus (TP), total nitrogen(TN) and ammonium nitrogen (NH₄⁺-N) were 49.89%, 50.44%, 53.41% and 48.45% in the horizontal flow constructed wetland system respectively. At same time, The study on plant of the constructed wetland indicates that it can be clearly observed that the plants removed the nitrogen and phosphorus directly by absorption, and this process performed better in the growing season of plants. The plants on the foreside of the bed grew better than those grew on the rearward, and they can also absorb more nitrogen and phosphorus. On the other hand, the pollutants in the raw water were filtrated and absorbed by the plants' roots. The roots also provided a habitat for the microorganism and then, the microorganism played a degradation function on the pollutant, which had a significant effect in the constructed wetland systems.

Keywords: subsurface constructed wetland micro-polluted water resource treatment efficiency effect of plants

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