**《Bioresource Technology》杂志刊登“再循环和人工曝气技术在垂直流人工湿地中处理高浓度废水的比较研究”**

作者：Paola Foladori, Jenny Ruaben, Angela R.C. Ortigara

刊物：《Bioresource Technology》，2013年12月，卷149，398-405页

关键词：人工湿地；间歇曝气；再循环；同步硝化－反硝化

摘要：中试规模的垂直流人工湿地通过三种方案来处理高水力和有机负荷的污水：（1）从床体底部到顶部的间歇循环处理，（2）在床体底部的间歇人工曝气，（3）两者的联合使用。整个运行过程是先进行6小时的处理，然后是排水阶段，最后进出新的污水。三种方案的COD的去除率都在85－90%之间，去除负荷在54–70 gCOD m−2 d−1之间。即使是在间歇曝气条件下（6.8 Nm3 m−2 d−1），由于同步硝化－反硝化作用，两种方案联合使用对总氮的去除效果也是最好的（8.6 gN m−2 d−1）。由于曝气/再循环技术联合使用的额外投资可以通过将每人口当量的表面积减少至1.5 m2/PE来弥补。

**Recirculation or artificial aeration in vertical flow constructed wetlands: A comparative study for treating high load wastewater**

Authors: Paola Foladori, Jenny Ruaben, Angela R.C. Ortigara

Journal: Bioresource Technology, December 2013, Volume 149, Pages 398-405

Key word: Constructed wetlands; Intermittent aeration; Recirculation; Simultaneous nitrification-denitrification

Abstract: Vertical subsurface-flow constructed wetlands at pilot-scale have been applied to treat high hydraulic and organic loads by implementing the following configurations: (1) intermittent recirculation of the treated wastewater from the bottom to the top of the bed, (2) intermittent artificial aeration supplied at the bottom of the bed and (3) the combination of both. These configurations were operated with a saturated bottom layer for a 6 h-treatment phase, followed by a free drainage phase prior to a new feeding. COD removal efficiency was 85–90% in all the configurations and removed loads were 54–70 gCOD m−2 d−1. The aerated and recirculated wetland resulted in a higher total nitrogen removal (8.6 gN m−2 d−1) due to simultaneous nitrification/denitrification, even in the presence of intermittent aeration (6.8 Nm3 m−2 d−1). The extra investment needed for implementing aeration/recirculation would be compensated for by a reduction of the surface area per population equivalent, which decreased to 1.5 m2/PE.

原文链接：http://www.sciencedirect.com/science/article/pii/S0960852413015319

**翻译：**胡鹏 ；**审核：翟家齐**