

Abstract: To provide evidence for constructing the artificial wetland system by aquatic plants, this study researches the purification effects of different assembled aquatic plants on rivulet sewage. Ten aquatic plants, which have strong purification ability, composed into six combinations. The aquatic plants were cultured in static and soilless simulated wetland environment. The removal rate of the pollutants in rivulet sewage was tested, by different combinations under different hydraulic retention time (HRT). Six combinations of aquatic plants showed high removal rates of $\text{NH}_4^+\text{-N}$, TN, TP, CODCr and BOD5, when HRT was at fifth day. Their average removal rates were 98.2%, 81.2%, 91.3%, 71.8%, 79.4%, respectively. *Vetiveria zizanioides*, *Cyperus alternifolius*, *Canna indica*, *Acorus calamus* and *Thalia dealbata* in group one showed the best effect among all the combinations. The purification efficiency of different aquatic plant systems depends on HRT. When HRT was from first to fifth day, the removal rates of $\text{NH}_4^+\text{-N}$, TN and TP increased gradually everyday. When HRT was from fifth to seventh day, the removal rates of $\text{NH}_4^+\text{-N}$, TN and TP decreased rapidly day by day. These results indicated that when HRT was at fifth day, the three different aquatic plants combinations had the highest purification efficiency of $\text{NH}_4^+\text{-N}$, TN and TP in rivulet sewage.

Key words: aquatic plant; rivulet sewage; pollutants; purifying efficiency

04 Experimental Study on Nitrogen and Phosphorus Removal Efficiency of Eutrophical Lake by Floating Combination Biological Technology

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Abstract: This paper studies the purification efficiency of eutrophical water by floating combination biological technology, which includes planting vetiveria zizanioids and hanging artificial medium on floating — beds, as well as adding photosynthetic bacteria in the eutrophicated water. It is shown through the experiment results that the floating combination biological technology removes TN and TP efficiently, and has a significant effect on improving water quality. It is also argued that long organism chain can improve the purifying effect of floating combination biological technology.

Key words: floating bed; vetiveria zizanioides; photosynthetic bacteria; combination medium; eutrophical water

05 Repairing Effect of Several Plants on the Aquaculture Wastewater of Fisheries

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Abstract: In this paper, the purification efficiencies of the aquaculture wastewater of fisheries were studied with Water hyacinth, Hydrilla, Vetiver, and Ipomoea aquatica in subtropical region. Several related indicators were monitored during this test in one month, they were nitrogen (N), phosphorus (P), chemical oxygen demand (COD), pH value, the dissolved oxygen (DO) and plant fresh weight. Results showed that: (1) The four plants are able to strengthen pollutants removing from the wastewater and have their own characteristics. (2) In theory, Water hyacinth and Hydrilla can be with each other in dealing with wastewater in order to maintain pH neutral and higher DO. (3) After 2~3 weeks treatment, water quality were significantly changed for the better while plants growth begin to slow down, so they were need to remove and replant timely (4) Purificating wastewater with Ipomoea aquatica in summer not only improved water quality but also create economic benefits. Study results provide a new scientific basis to explore plants choice in building artificial wetlands for wastewater treatment in Guangdong region.

Keywords: aquaculture wastewater of fisheries; purification plants; removal; plant growth

06 Treatment of Industrial Wastewater with Plant Composite Bed Technology

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Abstract: This work aimed at research on treatment of high concentration industrial wastewater using the combination method of different plant and padding. *Cyperus alternifolius*, moth orchid, *Chlorophytum comosum*, small papyrus, *Calamus* and *Chrysopogon zizanioides* were chosen as wetland plants. And several kinds of paddings were utilized as filter media in the system, including gravel, activated carbon, river sand, mixture of gravel and river sand, mixture of activated carbon and river sand as well as the mixture of gravel and activated carbon. The results showed that economically the combination of moth orchid and mixture of activated carbon and river sand was the best one under the same experimental condition, and its average COD_{Cr} removal efficiency and NH₄⁺-N removal efficiency were 95% and 99% respectively, which meet the first class standard of DB44 /26—2001.

Keywords: physi-chemical method /plant composite bed technology, plant, padding, the removal efficiency.

07 Study on Sewage Treated by *Vetiveria Zizanioides* Constructed Wetlands

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Abstract: A *Vetiveria zizanioides* Constructed Wetlands was built to research the system's resistance to soiling and the removal rate of COD, TP, TN in this system. The removal rate of COD, TP and TN was 63.5%、88.3% and 72.4% respectively by HRT 6h. The research resulted that the undercurrent wetland system had the better purification effect to the city sanitary sewage and this system has strong resistance to soiling.

Keywords: constructed wetland, *vetiveria zizanioides*, resistance to soiling, sewage

08 Residential Area Landscape Lake Water Quality Controlling Scheme

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Abstract: Based on a residential area landscape lake water quality controlling scheme as an example, this paper introduces the filling water calculation of the artificial landscape lake, the treatment scheme of the artificial wetland filling water, the ecological engineering measures of the artificial landscape lake and the operation management, providing reference for such type of engineering projects.

Keywords: Residential area landscape lake; Landscape lake filling water calculate; Artificial landscape lake ecological engineering measures