

The Study on Removal Efficiency of Ammonium Nitrogen by Four Herbaceous Plants in Artificial Rainwater

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Abstract: To select the best herbaceous plant for ammonium nitrogen removal in a bioretention, the ammonium nitrogen removal efficiency by four herbaceous in bioretention were explicated through a pot experiment. This experiment simultaneously set two scenarios, namely analyzing and measuring the removal efficiency of plants on ammonium nitrogen under the circumstance of different inflow concentration and different soil mediums. The results show that the four herbaceous plants have good removal effects on ammonium nitrogen in the artificial rainwater, and the average removal efficiency of ammonium nitrogen is between 93.90%~99.90%. The ranks of capabilities of different herbaceous plants removing ammonium nitrogen in artificial rainwater from high to low are: *lolium perenne* > *axonopus compressus* > *poa annua* > *festuca elat*. Four herbaceous plants have different removal efficiency on the ammonium nitrogen in the artificial rainwater with different concentrations. In the artificial rainwater, with the increase of inflow concentration of ammonium nitrogen, the removal efficiency of four herbaceous plants on ammonium nitrogen have also enhanced. For the same herbaceous plants with same inflow concentration, soil II is the optimum soil medium, possessing relatively good capacity of removing ammonium nitrogen.

Key words: Bioretention; Herbaceous Plants; Ammonium Nitrogen; Removal Efficiency