

## **Study on investigation of Distribution Characteristics of Nitrogen and Phosphorus Forms in the Soil/Sediment of North and South Banks of Huaihe River Basin**

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In order to study the migration mechanism of nitrogen and phosphorus in different types of soil and its impact on the migration of agricultural non-point source pollutants, typical farmland soil and ditches sediment were selected as the research objects, and the concentration of nitrogen and phosphorus in different forms was determined by the method of graded extraction. A study on the distribution characteristics of nitrogen and phosphorus forms on the north and south banks of the Huaihe River Basin was carried out in order to provide technical support for the treatment of non-point source pollution in the basin. The dissolved total nitrogen (DTN) content in the ditch sediments at the mouth of the Huaihe River is 4.35~9.86mg/kg, with an average value of 7.95 mg/kg. DTN accounts for up to 89.74% of the total nitrogen (TN); Moderately resistant organic phosphorus (MROP) and highly resistant organic phosphorus (HROP) in sediments not only differ greatly in content between the north and south banks, but also in vertical distribution. The proportion of MROP and HROP in the soil on the south bank showed a downward trend with the deepening of the soil, reaching the bottom value of 19.22% and 18.65% at 20-40cm and 40-60cm respectively; On the contrary, the contents of MROP and HROP in the soil of the north bank reached the peak value of 13.18% and 13.55% at 40-60cm. Ca-P on the south bank accounts for more than Fe/Al-P, which can reach 30.08% and 33.96% in 20-40cm and 40-60cm soil. In contrast to the north bank, the Fe/Al-P content in the soil of 0-10cm, 10-20cm, and 40-60cm all reached more than 40%. In the 20 mesh, 60 mesh and 100 mesh size, the phosphorus content of the bottom sludge is basically Fe/Al -P higher than Ca-P, while the content of Fe/Al-P and Ca-P both decrease with the decrease of the particle size reduce. There are obvious differences in soil nitrogen and phosphorus content between the north and south banks.

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