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北京市河流沉水植物水环境适应性研究

Adaptability of submerged macrophytes to water environment in Beijing rivers

关键词：[北京河流](#) [沉水植物](#) [环境因子](#) [典范对应分析](#)

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摘要：沉水植物是退化水体生态系统恢复过程中的重要奠基者。调查研究沉水植物的水环境适应性,对于制定不同污染程度水体的植被恢复对策具有重要指导意义。通过对北京市主要河流水系有沉水植物的36个样地进行了群落结构调查,共发现15个沉水植物物种。主成分分析结果表明,氨氮、总氮、总磷是影响沉水植物分布的主要因素;典范对应分析结果表明,沉水植物的分布主要受水体中化学营养盐含量和透明度的影响。综合分析判定,沉水植物有不同的水质适应区间,轮藻、黑藻、马来眼子菜等物种是清洁种,金鱼藻属于广布物种,而菹齿眼子菜、菹草为耐污种。

Abstract. Submerged macrophytes are important ecosystem founders for the restoration of degraded aquatic environment. The investigation of submerged macrophytes adaptabilities to the environment in rivers with different pollution degrees is of great value for the establishment of vegetation restoration strategies. Field surveys for submerged macrophytes were carried out at 36 different rivers sites in Beijing. A total of 15 submerged macrophytes species was recorded. Principal component analysis (PCA) indicated that ammonia nitrogen, total nitrogen and total phosphorus in the water body were the most important influence factors for the distribution of submerged macrophytes. Canonical correspondence analysis (CCA) illustrated that the distributions of submerged macrophytes was mainly influenced by the chemical nutrients concentration and the transparency of water body. Comprehensive analysis determined that submerged macrophytes had different adaptation ranges to water quality. *Charophyceae*, *Hydrilla verticillata* and *Potamogeton malaianus* were usually adaptive to clean water, *Ceratophyllum demersum* was widely distributed species, and *Potamogeton pectinatus* and *Potamogeton crispus* were tolerant species.

Key words. [rivers in Beijing](#) [submerged macrophytes](#) [environmental factors](#) [canonical correspondence analysis](#)

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