

Photosynthetic response of the floating-leaved macrophyte



For the ecological recovery of lakeside zones in shallow eutrophic lakes, choosing suitable aquatic macrophytes which could adapt to the temporary terrestrial habitat due to water level change is very important. In the present study, an experimental approach was carried out to explore the photosynthetic response of the typical floating-leaved aquatic plant *Nymphoides peltata* (*N. peltata*) to varying environmental factors. *N. peltata* grown under aquatic and terrestrial habitats showed similar photosynthesis-irradiance response patterns. The investigation of diurnal changes in gas exchange revealed that the net photosynthetic rate (PN) and water-use efficiency (WUE) of the *N. peltata* grown in the terrestrial habitat were 68% and 94% higher, respectively, than those in the aquatic habitat at nine in the morning. *N. peltata* grown in the terrestrial habitat had approximately 51% less stomatal density and a 77% smaller stomatal aperture area compared with those grown in aquatic habitats. The above results indicated that *N. peltata* could be well-acclimated to the terrestrial habitat by developing a series of photosynthetic acclimation features. Our study may provide an important reference for restoration in lakeside zones of shallow eutrophic lakes.

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