

研究报告

镇江内江湿地不同演替阶段植物群落小气候日动态

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摘要 2005年5月, 选择镇江内江湿地具有代表性的裸地、藨草群落和芦苇群落, 分别代表植被群落的不同演替阶段, 测定不同群落、不同层次的光照强度、气温、土温和空气相对湿度, 研究其植物群落小气候的日动态. 结果表明, 随演替由裸地到藨草群落到芦苇群落进行, 群落内光照强度、气温和土壤温度均明显降低, 日变幅减小. 其中, 日均光照强度由 $1\ 204.7\ \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ 降至 $141.28\ \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$, 日均变幅由 $1\ 126\ \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ 降至 $265\ \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$; 日均气温由 $32.2\ ^\circ\text{C}$ 降至 $24.9\ ^\circ\text{C}$, 日均变幅由 $12.75\ ^\circ\text{C}$ 降至 $4.8\ ^\circ\text{C}$; 日均土温由 $21.83\ ^\circ\text{C}$ 降至 $19.47\ ^\circ\text{C}$, 日均变幅由 $4.5\ ^\circ\text{C}$ 降至 $2.1\ ^\circ\text{C}$. 群落内空气相对湿度明显升高(由 58.95% 增至 87.3%), 变幅减小(由 29.75% 降至 5.15%). 生境具有早期的开放性和后期的封闭性, 小气候环境朝着更为阴、凉、湿的环境变化, 且波动性减弱, 稳定性增强. 各群落内的光强、气温、湿度及土温之间均存在一定相关, 但不同演替阶段各因子间相关程度各异.

关键词 [湿地](#) [演替阶段](#) [植物群落](#) [小气候](#) [日动态](#)

分类号

Diurnal dynamics of microclimate at different succession stages of vegetation communities in inner-river wetland of Zhenjiang City

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Abstract

To study the diurnal dynamics of microclimate at different succession stages of vegetation communities in the inner-river wetland of Zhenjiang City, three typical communities were chosen, and the light intensity, air temperature, soil temperature, and air relative humidity were measured. The results showed that with the succession of barren land \rightarrow *Phalaris arundinacea* \rightarrow *Phragmites communis*, the diurnal mean values of light intensity, air temperature, and soil temperature decreased from $1\ 204.7\ \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ to $141.28\ \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$, $32.2\ ^\circ\text{C}$ to $24.9\ ^\circ\text{C}$, and $21.83\ ^\circ\text{C}$ to $19.47\ ^\circ\text{C}$, and their daily variations decreased from $1\ 126\ \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ to $265\ \mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$, $12.75\ ^\circ\text{C}$ to $4.8\ ^\circ\text{C}$, and $4.5\ ^\circ\text{C}$ to $2.1\ ^\circ\text{C}$, respectively. The air relative humidity increased from 58.95% to 87.3% , while its variation decreased from 29.75% to 5.15% . Habitats were open at early succession stage but more closed at late succession stage, microclimatic conditions developed towards much more cloudy, cold, and moist, and microclimate had a less fluctuation. There were definite correlations among the light intensity, air temperature, soil temperature, and air relative humidity in the vegetation communities, but the correlation coefficients among the test factors were differed at different succession stages.

Key words [Wetland](#) [Succession stage](#) [Plant community](#) [Microclimate](#) [Diurnal dynamics](#)

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