

模拟酸雨胁迫对杨梅幼苗水分生理特性的影响

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Effects of simulated acid rain on water physiological characteristics of *Myrica rubra* seedlings.YAO Zhao-bin^{1,2}, JIANG Hong^{1,2,3}, YU Shu-quan^{1,2}, LU Mei-juan^{1,2}

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摘要 选择浙江省典型亚热带经济植物杨梅为对象,通过盆栽试验研究了重度酸雨(pH 2.5)、中度酸雨(pH 4.0)和对照(pH 5.6)处理对杨梅幼苗水分生理特性的影响。结果表明:季节、年份和酸雨对杨梅幼苗的光合速率均有显著影响,各处理中,夏季的差异大于春、秋季,pH 4.0处理对光合速率有促进作用;季节、年份、酸雨,季节-年份交互作用以及三者交互作用对气孔导度均有显著影响,各处理在夏季的差异大于春、秋季,酸雨对气孔导度有抑制作用;季节、年份、酸雨及季节-年份和季节-酸雨两两交互作用对蒸腾速率有显著影响,各处理夏季的差异大于春秋,且pH 2.5处理对蒸腾速率的抑制作用最强;酸雨、季节-年份和季节-酸雨交互作用对水分利用率有显著影响,且pH 2.5处理对水分利用率有一定的促进作用

关键词: 模拟酸雨 杨梅 幼苗 水分生理

Abstract: Taking the seedlings of typical subtropical economic tree species *Myrica rubra* in Zhejiang Province as test materials, a pot experiment was conducted to study their water physiological characteristics under effects of simulated acid rain (pH 2.5 and pH 4.0), with water (pH 5.6) as the control. Season, year, and acid rain all had significant effects on the photosynthetic rate (P_n). Among the treatments, the P_n had a greater difference in summer than in spring and autumn, and was higher in treatment acid rain (pH 4.0). Season, year, acid rain, and the interactions of season and year and of the three factors had significant effects on the stomata conductance (G_s), and also, the G_s had a greater difference among the treatments in summer than in spring and autumn. Acid rain had inhibitory effect on G_s . Season, year, acid rain, and the interactions of season and year and of season and acid rain affected the transpiration rate (T_r) significantly. Same as P_n and G_s , the T_r had a greater difference among the treatments in summer than in spring and autumn. Acid rain (pH 2.5) had the strongest inhibitory effect on T_r . Acid rain and the interactions of season and year and of season and acid rain had significant effects on the water use efficiency (WUE), and acid rain (pH 2.5) had definitely positive effect on the WUE.

Key words: simulated acid rain *Myrica rubra* seedling water physiology

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