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不同海拔来源宽刺蔷薇的光合日变化及其生理机制

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Daily Photosynthetic Changes and Physiological Mechanisms of the Seedlings of *Rosa platyacantha* from Different Altitudes of Xinjiang

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摘要 以来源于不同海拔高度的3个新疆宽刺蔷薇1年生实生苗为材料，在引种地北京测定光合作用日变化以及13：00的荧光参数、抗氧化生理指标。结果表明，来源不同海拔的宽刺蔷薇植株都在9：00以后出现净光合速率的持续降低，在上午受到气孔限制，中午则主要受非气孔限制，即PSⅡ反应中心活性的影响。各植株在13：00均受到不同程度的光抑制，与来源中、低海拔植株相比，来源高海拔的植株PSⅡ反应中心活性与热耗散能力均显著降低，即发生了更显著的光抑制效应；POD、APX酶活性以及AsA/DHA等酶类和非酶类抗氧化物质在高海拔来源植株中显著升高，以抵抗光氧化胁迫，但仍然造成了过剩的活性氧累积以及植物组织的膜脂过氧化伤害。

关键词： 宽刺蔷薇 海拔 迁地 光合作用 光保护

Abstract： The parameters of photosynthesis, chlorophyll fluorescence and antioxidant systems during the day or at 13：00 were *ex situ* measured in Beijing on the leaves of 1-year-old seedlings of *Rosa platyacantha* from three different altitudes from Xinjiang. The results showed there were continuous declines of P_n after 9：00 on the seedlings of *R. platyacantha* from all altitudes, which should be due to stomatal limitation in the morning while non-stomatal limitation at noon. In comparison to the seedlings from low and medium altitudes, the impaired PSⅡ activity and heat dissipation were observed at 13：00 in the seedlings from high altitude, indicating a worse photoinhibition. Moreover, the antioxidant system including POD and APX activities, as well as AsA/DHA were enhanced at 13：00 but still led to the excessive ROS and lipid peroxidation in the seedlings from high altitude, which suggesting the significant photodamage happened.

Keywords： *Rosa platyacantha*, altitude; ex situ, photosynthesis, photoprotection

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