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研究报告

塔克拉玛干沙漠腹地多枝柽柳茎干液流及耗水量

许浩[1, 2, 3], 张希明[1], 闫海龙[1, 2], 姚世军[1]

[1]中国科学院新疆生态与地理研究所, 乌鲁木齐 830011; [2]中国科学院研究生院, 北京 100039; [3]宁夏农林科学院荒漠化治理研究所, 银川 750002

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摘要 2005年4—11月, 利用植物茎流计研究了塔克拉玛干沙漠腹地沙漠公路防护林植物多枝柽柳的茎干液流特性和耗水量. 结果表明:在极端干旱的沙漠腹地, 土壤水分充足时, 直径为3. 5和2. 0 cm的多枝柽柳在整个生长季的日平均耗水量分别为6. 322和1. 179 kg; 多枝柽柳的茎干液流呈单峰曲线型, 有明显的昼夜变化规律, 茎干液流随环境因子变化而波动; 在土壤水分充足的条件下, 总辐射、风速、温度是影响茎干液流变化的主要环境因子, 可以用总辐射和风速的线性回归模型预测茎干液流的变化. 沙漠腹地多枝柽柳的蒸腾耗水量相对较高, 是因为在较为充足的水分供应条件下, 多枝柽柳通过大量的水分消耗来抵御干燥高温的沙漠环境.

关键词 塔克拉玛干 多枝柽柳 茎干液流 蒸腾耗水量

分类号

Stem sap flow and water consumption of *Tamarix ramosissima* in hinterland of Taklimakan Desert

XU Hao[1,2,3], ZHANG Xi-ming[1], YAN Hai-long[1,2], YAO Shi-jun[1]

[1]Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences, Urumqi 830011, China;[2]Graduate University of Chinese Academy of Sciences, Beijing 100039, China;[3]Desertification Control Institute, Ningxia Academy of Agriculture and Forestry Science, Yinchuan 750002, China

Abstract

From April to November 2005, the stem sap flow and water consumption of T*amarix ramosissima* in the hinterland of Taklimakan Desert was measured by Flow-32 System. The results showed that, in the extremely arid hinterland of Taklimakan Desert and under enough water supply, the average daily water consumption of *T. ramosissima* with a stem diameter of 3.5 cm and 2.0 cm was 6.322 kg and 1.179 kg, respectively in one growth season. The stem sap flow of *T. ramosissima* presented a single-peaked curve, with an obvious day and night variation rhythm and fluctuated with environment factors. Under enough water supply, the environmenal factors such as total radiation, wind speed and air temperature were the main factors affecting the stem sap flow, and the dynamics of stem sap flow could be predicted by the liner regression model based on total radiation and wind speed. Because of the extremely arid environment and enough water supply, *T. ramosissima* had a relatively higher stem sap flow rate and a great water consumption.

Key words Taklimakan *Tamarix ramosissima* sap flow water consumption through transpiration

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通讯作者