

## 紫玉兰树干液流对北京市综合环境变量的响应

王华1, 欧阳志云1\*\*, 郑华1, 任玉芬1, 高付元2

1中国科学院生态环境研究中心城市与区域生态国家重点实验室| 北京100085; 2北京教学植物园, 北京 100061

*Magnolia liliiflora* whole-tree sap flow in response to multiple environmental variables in Beijing.

WANG Hua1, OUYANG Zhi-yun1, ZHENG Hua1, REN Yu-fen1, GAO Fu-yuan2

1State Key Laboratory of Urban and Regional Ecology, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing 100085, China; 2Beijing Teaching Botanical Garden, Beijing 100061, China

- 摘要
- 参考文献
- 相关文章

全文: PDF (864 KB) HTML (1 KB) 输出: BibTeX | EndNote (RIS) 背景资料

## 摘要

2008年4-10月, 为明确典型城市绿化树种紫玉兰耗水特征的影响因素, 研究了紫玉兰树干液流对北京市空气温湿度、辐射、风速、土壤温度和含水量、降雨等环境因子的响应. 结果表明: 影响紫玉兰树干液流的8个环境因子可分为蒸发需求因子(EDI)、土壤因子和降水因子3类, 其中, EDI(大气温度、空气相对湿度、总辐射、风速和水汽压亏缺)是影响紫玉兰树干液流的关键因子, 可以解释紫玉兰树干液流变化的60%, 且紫玉兰树干液流对EDI的响应方式呈“S”型曲线, 液流达到最大值后, 即使光照和蒸发需求增加, 液流也不再增加; 土壤因子(土壤温度和土壤含水量)和降水因子(降水量)对紫玉兰树干液流的影响很小.

关键词: 城市树木 热消散技术 树干液流 主成分分析 紫玉兰

## Abstract:

In order to clarify the environmental factors affecting the water use of typical urban tree species *Magnolia liliiflora*, an investigation was conducted on the responses of *M. liliiflora* whole-tree sap flow to the air temperature, air relative humidity, radiation, wind speed, soil temperature and water content, and precipitation in Beijing from April to October, 2008. The eight environmental factors affecting *M. liliiflora* whole-tree sap flow could be divided into three categories, *i.e.*, evaporative demand index, soil index, and precipitation index. The evaporative demand index (air temperature, air relative humidity, total radiation, wind speed, and vapor pressure deficit) could explain 60% of the variation in the sap flow of individual trees, which presented S-type change trend, *i.e.*, the sap flow reached an asymptote where higher light and evaporative demands could not cause sap flow to increase further. Soil index (soil temperature and water content) and precipitation index (precipitation amount) had little influence on the sap flow.

Key words: urban tree thermal dissipation method sap flow principal components analysis *Magnolia liliiflora*

## 引用本文:

. 紫玉兰树干液流对北京市综合环境变量的响应[J]. 应用生态学报, 2011, 22(03): 571-576.

. *Magnolia liliiflora* whole-tree sap flow in response to multiple environmental variables in Beijing. [J]. Chinese Journal of Applied Ecology, 2011, 22(03): 571-576.

## 链接本文:

<http://www.cjae.net/CN/> 或 <http://www.cjae.net/CN/Y2011/V22/I03/571>

## 没有本文参考文献

- [1] 王启兰, 王溪, 曹广民, 王长庭, 龙瑞军. 青海省海北州典型高寒草甸土壤质量评价[J]. 应用生态学报, 2011, 22(06): 1416-1422.

## 服务

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ E-mail Alert
- ▶ RSS

## 作者相关文章