

## 部分引进牡丹品种的形态多样性

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## Morphological diversity of some introduced tree peony cultivars

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摘要

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**摘要** 研究牡丹品种的形态多样性可为合理利用牡丹种质资源、培育牡丹新品种提供依据。作者以21个有代表性的中国牡丹品种作为对照,对引自美国、法国和日本的68个品种的41个形态性状进行了研究。统计分析结果表明:不同来源的牡丹品种具有丰富的形态多样性,其变异系数介于14.30-158.99%之间,平均为44.49%。通过主成分分析将41个性状综合为10个主成分,其中第1、3、5、6、7、8、9等7个主成分可以合并为第一因子,主要反映花部特性;另外3个主成分可以合并成第二因子,主要反映叶片的特性。主成分分析结果基本支持聚类分析结果。基于形态性状的聚类分析把所研究品种聚为两类:第一类绝大多数为国外品种,其特点为叶表面有色晕、花径较大、花瓣无色斑、花期晚、花朵向上;第二类同时包含了国内和国外品种,但可以通过进一步的聚类加以区分,其特点为叶表面无色晕、花径较小。多数国外品种与国内品种形态差异比较明显,说明不同来源的牡丹品种之间遗传差异较大,建议在今后的育种工作中选择与国内品种差异较大的国外品种作为亲本。

**关键词:** 牡丹 形态分化 遗传差异 聚类分析 育种

**Abstract:** Tree peonies, native to China, are widely cultivated in many countries, but the threat of genetic degradation in new varieties is serious due to the selection of local cultivars as parents in breeding. Hence, it is important to use introduced cultivars from different origins when breeding new varieties. To assist in enlarging the genetic basis of tree peonies, we examined 41 morphological traits of 68 introduced tree peony cultivars from the USA, France and Japan, and compared them to 21 local varieties. We found high levels of morphological diversity among cultivars; coefficients of variation based on morphological traits ranged from 14.3% to 159%, with an average of 44.5%. A principal component analysis (PCA) integrated these 41 traits into 10 principal components. Among these components, 7 were most strongly associated with the first factor, representing flower characters; the other 3 were associated with the second factor, representing leaf characters. Results of a cluster analysis concurred with those of the PCA analysis. All cultivars clustered into two groups: the first was characterized by those that exhibited non-leaf-chromatic, larger flower diameter, non-petal-blotch, late flower time and erect flowers, and most of them were foreign cultivars; the second included foreign and Chinese cultivars and can be further classified, and was characterized by non-leaf-chromatic and small flower diameter. Moreover, the cluster analysis showed that most foreign cultivars were well-differentiated from domestic cultivars morphologically.

**Keywords:** tree peony introduced cultivars breeding genetic variation morphological diversity cluster analysis

Received 2010-09-17; published 2011-09-20

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**引用本文:**  
周波, 江海东, 张秀新, 薛璟祺, 石颜通. 部分引进牡丹品种的形态多样性[J] 生物多样性, 2011, V19(05): 543-550

Bo Zhou, Haidong Jiang, Xiuxin Zhang, Jingqi Xue, Yantong Shi. Morphological diversity of some introduced tree peony cultivars[J] Biodiversity Science, 2011, V19(05): 543-550

**链接本文:**  
<http://www.biodiversity-science.net/CN/10.3724/SP.J.1003.2011.08227> 或 <http://www.biodiversity-science.net/CN/Y2011/V19/I05/543>

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