

## 不同地理唐古特白刺家系花粉形态多样性研究

李超群<sup>1</sup>, 李毅<sup>1\*</sup>, 张咏梅<sup>2</sup>, 陈君婵<sup>1</sup>, 李蒙<sup>1</sup>, 芦倩<sup>1</sup>

(1.甘肃农业大学林学院, 甘肃 兰州 730070; 2.甘肃农业大学研究测试中心, 甘肃 兰州 730070)

**摘要:** 为了解唐古特白刺种内花粉形态的多样性, 对不同地理的 6 个家系花粉形态进行研究。本研究材料来源于 2011 年收集野外种子并种植在同一环境条件下。采集新鲜花粉并进行冷冻干燥处理, 通过扫描电镜进行拍照、测量, 后对 6 个家系间的测量数据进行方差分析、主成分分析和聚类分析。唐古特白刺花粉为单粒形式存在, 中等大小花粉粒, 长球形, 具三孔沟, 萌发沟宽, 存在连接, 萌发沟脊面为两极小, 中间大, 呈“凸”形增大, 纹饰类型为条状、脑状, 并没有构成图案; 家系花粉在萌发沟特征、萌发沟脊面形状及纹饰类型等方面存在显著不同, 其中武威民勤小坝口的萌发沟变异最复杂; 张掖甘州龙渠的萌发沟脊面形状变异最大; 张掖甘州老寺庙的纹饰类型最丰富; 仅有张掖甘州龙渠与武威民勤小坝口的表面纹饰构成似“指纹”的图案。花粉性状变异系数在 4.33%-40.09%之间, 其中花粉质量性状 (27.97%) 的遗传稳定性高于数量性状 (4.91%), 主要受遗传因子影响。聚类分析发现, 6 个家系聚为 4 类, 地理相近的张掖甘州龙渠与张掖甘州老寺庙聚为一类, 酒泉瓜州槽沿子与酒泉金塔聚为一类。研究结果为唐古特白刺种质资源遗传多样性及育种研究提供了一定的依据。

## Pollen Specificity Analysis of *Nitraria tangutorum* in Different Geographic Families

LI Chao-qun<sup>1</sup>, LI Yi<sup>1\*</sup>, ZHANG Yong-mei<sup>2</sup>, CHEN Jun-chan<sup>1</sup>, LI Meng<sup>1</sup>, LU Qian<sup>1</sup>

(1.College of Forestry, Gansu Agricultural University, Lanzhou, Gansu province 730070, China; 2. Research and Testing Center of Gansu Agricultural University, Lanzhou, Gansu province 730070, China)

**Abstract:** In order to understand the species diversity of *Nitraria tangutorum*, the pollen morphology of 6 families from different geographical regions was studied. The materials in this study were collected in 2011 and planted in the same environment. The fresh pollen was freeze-dried, photographed and measured by scanning electron microscope (SEM), and the measured data of 6 families were analyzed by variance analysis, principal component analysis and cluster analysis. The pollen grains of *Nitraria tangutorum* existed as single grains, medium size, long globose, with three orifices, wide orifices, local connections, and the ridge surface of orifices of orifices was extremely small, the middle was large, "convex" shape increased, decorative type for the strip, brain-shaped, and did not constitute a pattern; There were significant differences in the characteristics, ridge shape and ornamentation type of the pollen, among which the variation of the pollen was the most complicated; The shape variation of the ridge surface of the germinating ditch in Ganzhou Dragon Canal of Zhangye was the largest; The decorative patterns of the old temples in Zhangye are the most abundant; Only the dragon canal in Ganzhou, Zhangye, and the Xiaobaokou Dam in minqin, Wuwei, form a "fingerprint" pattern. The coefficient of variation of pollen morphology ranged from 4.33% to 40.09%, in which the genetic stability of pollen quality traits (27.97%) was higher than that of quantitative traits (4.91%), It's mostly gene. Cluster analysis revealed that the six families were grouped into four categories, with Longqu in Zhangye and old temple in Zhangye, and Guazhou trough in Jiuquan and gold pagoda in Jiuquan. The results provide a basis for the genetic diversity and breeding of *Nitraria tangutorum*.