

## 不同地理种群羊草的遗传分化研究

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**摘要:**以不同地理种群羊草为实验材料(包括内蒙古高原的各草原类型, 荒漠草原、典型草原、草甸草原及吉林盐碱地羊草), 分别从个体(叶长、叶宽、株高、分蘖数、根茎芽数等特征及根茎叶的扫描电镜结构)、生理(在 PEG 胁迫下叶片的电阻电导、SOD 和 POD 的活性、脯氨酸和丙二醛的含量等)、细胞(染色体核型)、同工酶及 DNA(RAPD)等几个水平较为系统地研究其遗传分化以及对水因子的适应机理, 并进行了大量的聚类分析, 发现: 不同地理种群的羊草, 其遗传分化的过程是比较复杂的, 在不同的层次上表现出不同的适应性反应。虽然水因子是影响其分化的一个主导因子, 但是在实际研究工作中认识到, 羊草的变异和分化是多种生态因子综合作用的结果(如温度、海拔、经纬度、土壤类型等), 而且各因子之间又是相互影响, 在不同的生境中限制因子又是变换的, 这就造成不同地理种群的羊草遗传分化过程的复杂性, 值得长期深入研究。

**关键词:** 羊草; 不同地理种群; 水因子; 适应; 遗传分化

## A comparative study on genetic differentiation of *Leymus chinensis* in different geographic populations

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**Abstract:** The grass (*Leymus chinensis*) of different geographic populations on the Inner Mongolian Plateau were used as the research materials. The genetic differentiation and mechanism of adaptation to water shortage was studied on four levels—individual level, physiological level, cell level and molecular level. It was found that: the grass of different geographic populations were complicated in their processes of genetic differentiation and showed various phenomenon at different levels. Although water was the major factor which influenced their differentiation, the mutation and differentiation of the grass was the result caused by various factors: temperature, altitude, latitude, longitude and soil type etc. together. These factors influenced each other and the limiting factors in different natural habitats were alternative. All of the above caused that the complication during the process of their genetic differentiation. Further study is needed.

**Key words:** *Leymus chinensis*; different geographic populations; factor of water; adaptedness; genetics and differentiation

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羊草(*Leymus chinensis*)是一种多年生根茎禾草, 广幅旱生草原建群种<sup>[1]</sup>, 盐生草甸的优势种。同时也是一种优良的牧草, 其东西横跨东经 92~132 度, 南北跨于北纬 36~62 度之间, 广泛分布于东北, 内蒙和新疆等地。如此广阔的地域, 水分、温度及土壤等生态因子都有着明显的差别, 为羊草产生遗传分化和形成不同生态型提供了极大的可能性。对内蒙古不同类型羊草草原及吉林盐碱地羊草其水因子是众多生态因

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