

拉萨河谷上段江孜沙棘 *Hippophae gyantsensis* (Rousi) Lian 种群的海拔梯度性变异

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摘要: 江孜沙棘 [*Hippophae gyantsensis* (Rousi) Lian] 是青藏高原特有的一种广生态幅的小乔木, 在拉萨河谷地区的海拔 3500 ~ 4200 m 范围内均有分布。前人工作多集中在江孜沙棘果实的开发利用方面, 对其基础生态学研究较少。本研究旨在探讨江孜沙棘沿海拔梯度的群落组成和表型变异的规律。为此, 在拉萨河谷上段沿海拔梯度由东向西设置了 4 个样带: 3850 m, 3950 m, 4050 m 和 4200 m, 每个样带设置 2 至 3 个 10 m × 10 m 的样方进行研究。首先, 详细记录了每个样方内林下维管植物的物种组成、样方内的沙棘盖度、海拔、样方与河岸的实际距离, 并用 DCA [detrended correspondence analysis (去势对应分析)] 排序方法对群落及其组成物种进行排序分析。随机抽取了每个样方内的 20 个江孜沙棘植株个体, 测定其胸径、基径、株高和叶片长度, 用回归分析法分析这些变量和海拔之间的关系。研究结果表明, 江孜沙棘在拉萨河谷内的主要生境分为 4 种类型, 即: 河边砾石滩地、河阶草滩、河边草甸和河边林缘, 样方排序结果主要受海拔的影响; 同时, 江孜沙棘植株的基径、胸径和高度都随着海拔的升高而显著减小, 而叶片长度与海拔之间无显著相关。本文研究结果表明, 对江孜沙棘而言, 海拔所代表的综合环境因子对其分布和表型有显著的影响, 而局部光照可能也是影响其表型特征的重要生态因子。

关键词: 江孜沙棘; 海拔梯度; 群落排序; 表型变异; 青藏高原

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The Pattern of Variations of *Hippophae gyantsensis* (Rousi) Lian along an Elevation Gradient in Lhasa Valley, Tibet, China

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Abstract: *Hippophae gyantsensis* (Rousi) Lian is an endemic plant species of Qinghai-Tibet plateau, which distribute widely in the Lhasa valley with a distribution range of altitude about 3500 - 4200 m. Former research mainly focused on its utilization and exploitation, only a few studies on its ecological research. In this paper, based on the survey of *H. gyantsensis* (Rousi) Lian community along four altitudinal bands in Lhasa valley, three or two 10 m × 10 m of plots was sampled in each altitudinal bands. In each plot all vascular plant species was recorded as percentage coverage, and height, base diameter, diameter of breast height, blade length of 20 individuals of *H. gyantsensis* was randomly measured. Environmental variables such as plot altitude and the distance of plot from river was also measured. DCA (detrended correspondence analysis) was performed to find major distribution pattern of *H. gyantsensis*. In order to detect how the height, base diameter, diameter of breast height, blade length of *H. gyantsensis* relate to the elevation the regression analysis was performed. The results showed that the habitat of *H. gyantsensis* was classified into four major types, which are forest side, meadow, river-side grasslands and sandy river side. Altitude is the most important environmental factor for influencing distribution and variation of *H. gyantsensis*. Height, base diameter, diameter of breast height *H. gyantsensis* decreases with increasing altitude, however, there is no significant relationship between the blade length and altitude, which may be more influenced by the microhabitats (light).

Key words: *Hippophae gyantsensis* (Rousi) Lian; Elevation gradient; Community ordination; Variation; Qinghai-Tibet plateau

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