

研究报告

芦芽山鬼箭锦鸡儿灌丛营养特征及土壤养分分布规律

张强^{1,2,3}, 程滨^{2,3}, 杨治平^{2,3}, 郜春花^{2,3}, 张一弓^{2,3}, 张丽珍¹

¹山西大学黄土高原研究所, 太原 030006;

²山西省农业科学院土壤肥料研究所, 太原 030031;

³山西省土壤环境与养分资源重点实验室, 太原 030031

收稿日期 2006-2-7 修回日期 2006-10-8 网络版发布日期 接受日期

摘要 研究了芦芽山自然保护区亚高山草甸带鬼箭锦鸡儿 (*Caragana jubata*) 灌丛营养成分季节性变化和土壤养分分布规律。结果表明, 鬼箭锦鸡儿具有很高的营养价值, 粗蛋白含量达20.27%, 粗纤维含量33.83%, 灰分5.12%, 同时含有丰富的Ca、Fe、Mn等中微量元素, 是亚高山草场家畜的优质饲料来源。鬼箭锦鸡儿营养成分呈明显的季节性变化规律: 从5月开始, 随着灌丛生长发育, 体内粗蛋白、灰分和矿质元素含量呈上升趋势, 7月(开花期)达到最高, 然后逐步降低。为适应海拔高、气温低、土层薄的亚高山草甸带生境, 鬼箭锦鸡儿灌丛周围的土壤养分向灌丛中心聚集, 灌丛中心的土壤电导率、有机质、全氮、速效磷和有效钾分别较灌丛边缘高18.8%、16.4%、18.7%、16.6%和8.4%, 形成了明显的“肥岛效应”。鬼箭锦鸡儿灌丛根际土壤有机质、全氮出现富集, 有效磷、速效钾和速效铁、锰在根际周围出现明显亏缺, 表明鬼箭锦鸡儿具有高效固氮和吸收利用土壤养分的能力。

关键词 芦芽山 鬼箭锦鸡儿 营养成分 土壤养分分布特征 肥岛效应 根际

分类号

Nutritional characteristics of *Caragana jubata* shrub and distribution patterns of soil nutrients in Luya Mountain

ZHANG Qiang^{1,2,3}, CHENG Bin^{2,3}, YANG Zhiping^{2,3}, GAO Chunhua^{2,3}, ZHANG Yigong^{2,3}, ZHANG Lizheng¹

¹Institute of Loess Plateau, Shanxi University, Taiyuan 030006, China;

²Institute of Soil and Fertilizer, Shanxi Academy of Agricultural Sciences, Taiyuan 030031, China;

³Provincial Key Laboratory of Soil Environment and Nutrient Resources, Taiyuan 030031, China

Abstract

The study on the nutrient components of *Caragana jubata* shrub and the distribution patterns of soil nutrients in Luya Mountain of Shanxi Province showed that *C. jubata* was a valuable feeding plant, which contained 20.27% of crude protein and 5.12% of ash with abundant Ca, Fe and Mn. The crude protein, ash, and mineral element contents increased from May and achieved the highest in July when *C. jubata* was at flowering stage, and then declined. To adapt to the habitat in subalpine meadow with high altitude, low temperature and thin soil layer, *C. jubata* had “fertility island” effect. The electric conductivity and the contents of organic matter, total N, available P and available K in the center of “fertility island” increased by 18.8%, 16.4% 18.7%, 16.6% and 8.4%, respectively, compared with those in the edge of the “fertility island”. The organic matter content and total N content in rhizosphere increased, while the contents of available nutrients such as P, K, Fe and Mn decreased, suggesting that *C. jubata* had high capability of N fixation and nutrients uptake.

Key words [Luya Mountain](#) [Caragana jubata](#) [Nutritional characteristics](#) [Soil nutrient distribution](#) [Fertility island](#) [Rhizosphere](#)

DOI:

通讯作者

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(481KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ [本刊中 包含“芦芽山”的相关文章](#)

▶ [本文作者相关文章](#)

· [张强](#)

·

·

· [程滨](#)

·

· [杨治平](#)

·

· [郜春花](#)

·

· [张一弓](#)