



### 云南改良稻及元阳地方稻磷高效研究

王雨辰<sup>1,2</sup>, 曾亚文<sup>2</sup>, 杜娟<sup>2</sup>, 杨树明<sup>2</sup>, 普晓英<sup>2</sup>

1. 云南大学, 生命科学学院, 云南 昆明, 650091;
2. 云南省农业科学院, 生物技术与种质资源研究所, 云南 昆明, 650223

### A study on the phosphorus efficiency of rice from Yunnan-improved breeds and local rice of Yuanyang

WANG Yu-chen<sup>1,2</sup>, ZENG Ya-wen<sup>2</sup>, DU Juan<sup>2</sup>, YANG Shu-ming<sup>2</sup>, PU Xiao-ying<sup>2</sup>

1. School of Life Sciences, Yunnan University, Kunming 650091, China;
2. Biotechnology and Genetic Resources Institute, Yunnan Academy of Agricultural Sciences, Kunming 650223, China

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**摘要** 在土壤有效磷质量比分别为 $0.26\text{mg} \cdot \text{kg}^{-1}$ 和 $80.0\text{mg} \cdot \text{kg}^{-1}$ 条件下对云南111份改良稻和77份元阳地方稻进行形态性状与程氏指数间的磷高效研究,以明确籼粳分化和米色与磷高效间相互关系,对比改良稻和地方稻间磷高效差异.结果表明:①相对地上干物质质量、相对地下干物质质量、相对总干物质质量和相对分蘖力4个耐低磷指标性状可作为水稻耐低磷能力强弱评价的理想指标,能明确反映出磷高效能力强弱;②元阳地方稻各亚种间平均耐低磷能力均明显高于云南改良稻,且差异明显,4个耐低磷指标性状平均值为籼>偏籼>偏粳>粳,有色米>有色米,耐低磷能力随程氏指数的增大呈递减趋势;③总体而言,程氏指数和耐低磷指标性状间多数呈显著负相关,磷高效特性和籼粳分化密切相关.

**关键词:** 改良种 地方稻 籼粳亚种 磷高效 程氏指数

**Abstract:** It was studied on the phosphorus efficiency and Cheng's index under low-P( $0.26\text{mg} \cdot \text{kg}^{-1}$ ) and high-P( $80.0\text{mg}/\text{kg}$ ) soil, with 111 Yunnan improved breeds and 77 Yuanyang(Yunnan) local races included, trying to reveal the phosphorus efficiency difference between indica and japonica, colored rice and colorless rice, and compare the phosphorus efficiency between improved breeds and local races. The results indicated: ① Relative shoot weight, relative root weight, relative total weight and relative tiller ability could be used as ideal indexes to judge the tolerance to the low-P of different rice genotypes; ② All samples showed that local breeds were more tolerant than improved rices to the low-P stress, the difference was significant; And a combination of four indices (relative shoot weight, relative root weight, relative total weight and relative tiller ability) showed different tolerance to the low-P stress by different characters like this: indica > indicalike > japonicalike > japonica, colored > colorless; The tolerance to the low-P stress decreased by the increasing of Cheng's index; ③ In a word, there was a significant negative correlation between Cheng's index and the tolerance to the low-P stress. And the phosphorus efficiency showed a close relationship with the differentiation of indica and japonica.

**Key words:**

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电话：0871-5033829(传真) 5031498 5031662 E-mail: yndxxb@ynu.edu.cn yndxxb@163.com