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小黑麦子粒中铁、锰、铜、锌含量对氮素反应的品种差异及其类型

匡 艺[1,2], 李廷轩[1*], 余海英[1]

1四川农业大学资源环境学院，四川雅安 625014; 2四川省威远县环境监测站，四川威远 642450

Cultivar difference and classification of Fe, Mn, Cu, Zn contents in Triticale grain in response of nitrogen application

KUANG Yi[1,2], LI Ting xuan[1*], YU Hai ying[1*]

1 College of Resources and Environmental Science, Sichuan Agriculture University, Yaan, Sichuan 625014, China; 2 Environmental Monitor Station of Weiyuan County, Sichuan Province, Weiyuan, Sichuan 642450, China

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摘要 采用盆栽试验，以31份具有不同遗传背景的小黑麦品种为材料，设低氮和正常供氮2个氮素水平，探讨小黑麦子粒中铁、锰、铜、锌含量对氮素反应的品种差异及其类型。结果表明: 1）不同供氮条件下，小黑麦子粒中铁、锌含量以正常供氮显著高于低氮条件，锰、铜含量在两个供氮条件下差异不显著；相同供氮条件下，小黑麦子粒中铁、锰、铜、锌含量存在显著的品种差异，变异系数为15.07 %～38.69 %。2） 铁、锰、铜、锌含量对氮素供应的敏感性存在差异，以各小黑麦品种子粒微量元素含量对氮素响应的敏感程度，可将其分为钝感型、中间型和敏感型3种类型。3）相关分析表明，铁、锰含量与粒重相关性不显著，铜、锌含量与粒重呈极显著正相关（相关系数分别为0.45、0.44）；铁、锰、铜、锌含量与子粒中含氮量呈极显著正相关（相关系数分别为0.34、0.55、0.47、0.71）。这些结果可为小黑麦营养品质有利基因的发掘和运用提供参考依据。

关键词： 小黑麦 微量元素 品种差异 类型

Abstract： Pot experiments were conducted to investigate the cultivar difference of Fe, Mn, Cu and Zn concentration and their types in triticale grain in response to nitrogen application. 31 triticale varieties with different inheritance background were used as experimental materials. Low and normal content nitrogen were supplied. The results showed that: 1) Under normal nitrogen supply, Fe and Zn content in triticale grain were significant higher than that of low nitrogen supply. The differences of Mn and Cu content under two nitrogen levels were not significant. Significant difference of Fe, Mn, Cu and Zn contents in triticale grain were observed under the same nitrogen levels. The coefficient of variation was from 15.07 % to 38.69 %. 2) The sensitivity discrepancy in view of Fe, Mn, Cu and Zn contents existed in the grain of triticale varieties under nitrogen supply. Insensitive type, intermediate type and sensitive type were classified based on sensitivity discrepancy of Fe, Mn, Cu and Zn contents under nitrogen supply. 3) According to correlation analysis, no positive significant correlation was observed between Fe and Mn content and1000-grain weight. The results showed a highly significant positive correlation between the content of Cu, Zn and1000-grain weight (the correlation coefficient were 0.45 and 0.44, respectively). The content of Fe, Mn, Cu and Zn had a highly significant positive correlation to nitrogen content in triticale grain (the correlation coefficient were 0.34, 0.55, 0.47 and 0.71, respectively). The conclusion could be used as a reference for excavation and application of advantaged gene in triticale.

Keywords： Triticale micronutrient cultivar variation type

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Corresponding Authors: 匡艺 Email: kuangyigar@sina.com

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