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论文

谷子地方品种发芽期和苗期对NaCl胁迫的反应和耐盐品种筛选

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摘要:

用150 mmol L⁻¹和200 mmol L⁻¹NaCl溶液鉴定194份来自河南、山东、河北等地的谷子地方品种的耐盐性, 筛选出红谷、小黄谷、三变丑等11份耐盐性较强的品种, 野谷5号和洋谷对盐胁迫比较敏感; 不同品种发芽率、根和芽生长表现不同。发芽相对盐害率与苗期株高和第一片真叶面积相对盐害率没有显著相关性, 但发芽期耐盐性差的品种野谷5号和洋谷在苗期耐盐性也较差。芽期耐盐性强的红谷、小黄谷和三变丑在150~200 mmol L⁻¹下苗期株高相对盐害率小于野谷5号和洋谷, 三变丑的株高相对盐害率低于红谷和小黄谷, 在高浓度下小黄谷的叶面积相对盐害率最小。

关键词: 谷子地方品种;NaCl胁迫;耐盐品种

Response to Sodium Chloride Stress at Germination and Seedling and Identification of Salinity Tolerant Genotypes in Foxtail Millet Landraces Originated from China

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Abstract:

One hundred and ninety-four Chinese foxtail millet [*Setaria italica* (L.) P. Beauv.] landraces were screened at germination and seedling stages for salinity tolerance with 150 or 250 mmol L⁻¹ NaCl treatments. On the basis of relative seed germination rate (RSG), relative shoot length (RSL), and relative root length (RRL), the landrace cultivars Honggu, Xiaohuanggu, and Sanbianchou, were identified to be the most salt-tolerant while Yegu 5 and Yanggu sensitive to salt stress. Correlation analysis indicated that RSG was not closely correlated with relative plant height (RPH) and relative leaf area (RLA) of the first true leaf at seedling stage. However, Yegu 5 and Yanggu with poor salinity tolerance at germination stage were also sensitive to salt stress at seedling stage. The RPH of Honggu, Xiaohuanggu, and Sanbianchou, were smaller than those of Yegu 5 and Yanggu. Under high concentrations of NaCl, the RLA of Xiaohuanggu was smaller than that of other cultivars.

Keywords: Foxtail millet Landrace; Sodium chloride stress; Salt-tolerant genotype

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