遗传 2004 26 (4): 491-494 ISSN: 0379-4172 CN: 11-5450/R

玉米耐铝性的遗传分析The Genetic Analysis of Al-tolerance in Maize

李德华1,2,贺立源2,刘武定2 LI De-Hua 1,2, HE Li-Yuan 2, LIU Wu-Ding 2

1孝感学院生物系，湖北 孝感432100；2华中农业大学资源环境学院，武汉430070 1Department of Biology of Xiaogan University, Xiaogan 432100 China; 2College of Resources and Environmental Sciences of Huazhong Agricultural University, Wuhan 430070 China

收稿日期 修回日期 网络版发布日期 接受日期

摘要

以两个耐铝性不同的玉米自交系及它们的杂交和回交世代为材料，采用营养液培养方法，对玉米的耐铝性进行了遗传分析。结果表明，根系相对生物量具有较高的的遗传变异，其广义遗传率高达78.6%。但其狭义遗传率仅为15.4%，说明其遗传方式以显性效应为主。相反，地上部相对生物量具有相对较高的狭义遗传率（43.1%），其遗传方式以加性效应为主。在0.1m mol/L Al3+ 胁迫条件下，根系总的和活跃的吸收比表面遗传率较低，说明此根系活力性状受环境影响较大。Abstract: The heredity of Al-tolerance was studied in different Al-tolerance of two inbred lines of maize and their F1, F2, B1 and B2 generations by the means of nutritional cultivation. The results indicated that the relative biomass(Al/CK) of root had high hereditary variance, the broad-sense heredity reached 78.6 %, but narrow-sense heredity only had 15.4 %. Its hereditary pattern mainly was dominant effects. On contrast, the relative biomass of shoot had high narrow-sense heredity (43.1%), it means that the hereditary pattern of relative biomass of shoot mainly was additive effects. On the hereditary ground of 0.1 mmol/L Al3+, the broad-sense heredity of total absorbing surface to volume ratio and active absorbing surface to volume ratio were 17.9 % and 36.4 %, and narrow-sense heredity of them were 10.0 % and 18.4 %. It means that the characters of root activity were obviously affected by environment.

关键词 玉米 耐铝性 遗传分析 Key words maize Al-tolerance genetic analysis

分类号

Abstract

Key words

DOI:

通讯作者