耐高 pH 土壤蓝莓的生长评价与种质筛选研究

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摘　要:【目的】“浆果之王”蓝莓适生于酸性土壤环境，而我国大部分土壤 pH 均高于蓝莓生长要求，故土壤 pH 是限制其生长的关键因素。通过研究高土壤 pH 条件下不同蓝莓品种幼苗的生长差异，筛选出具有耐高土壤 pH 生长潜力的品种，为选育耐高 pH 蓝莓新品种与蓝莓农业生产提供理论参考和技术服务。【方法】以已在江苏地区推广的兔眼（粉蓝、园蓝、灿烂、巴尔德温、布蓝特蓝、巨蓝）、南高丛（寨选 7、寨选 9、天后、安娜、夏普蓝）和北高丛（莱克西、绿宝石、蓝金、钱德勒）共 15 个蓝莓品种的 1 年生幼苗为试验材料，设置 5 个土壤 pH 环境[5.0（CK）、6.0、6.5、7.0 和 7.5]进行栽培比较试验，通过观察和测定各处理下的生长指标变化情况，评价并筛选出耐高 pH 土壤的蓝莓种质（品种）。【结果】通过观察发现，本试验大部分蓝莓品种在土壤 pH>6.5 时，成熟叶片会出现缺绿小斑块，且在土壤 pH 7.5 处理下，不同蓝莓叶片的 SPAD 值相较于 CK 处理均显著降低；通过测定各处理下蓝莓生长指标发现，较高土壤 pH 对蓝莓的生长均有不同程度的影响，其中不同品种蓝莓的株高和冠幅两个生长指标呈现随土壤 pH 的升高而降低的变化趋势，且其变化受土壤 pH 影响较大，而地茎和生枝数在不同土壤 pH 处理下的变化较小。【结论】整体比较而言，本次试验中南高丛蓝莓的耐高土壤 pH 生长表现要优于兔眼蓝莓和北高丛蓝莓。15 个蓝莓品种中：粉蓝、巴尔德温、寨选 7、寨选 9、夏普蓝、莱克西、蓝金表现出较好的耐高土壤 pH 生长适应性；株高、冠幅和叶片 SPAD 值可作为筛选蓝莓耐高土壤 pH 能力的鉴定指标。

关键词: 蓝莓；高土壤 pH；生长评价；种质筛选

Growth evaluation and germplasm screening of blueberry in high pH soil

Abstract: 【Objective】The "King of Berries" blueberry grows in acidic soil environment, and most of the soil pH in China is higher than the growth requirements of blueberry, so the soil pH is the key factor limiting the growth of blueberry. In order to provide theoretical reference and technical service for the selection and breeding of new blueberry varieties with high pH tolerance and blueberry agricultural production, the seedling growth differences of different blueberry varieties under high pH soil conditions were studied.【Method】One year old seedlings of 15 blueberry varieties, which have been promoted in Jiangsu, were used as experimental materials, including Rabbiteye blueberry(Powderblue, Gardenblue, Britewell, Baldwin, Briteblue, Plolific),Southern Highbush blueberry Gaocong (Zhaixuan 7, Zhaixuan 9, Primadonna, Anna, Sharpblue) and Northern Highbush blueberry (Legacy, Emerald, Bluegold, Chandler). Five soil pH environments [5.0 (CK), 6.0, 6.5, 7.0 and 7.5] were set for cultivation comparative experiment. By observing and measuring the changes of growth indexes under each treatment, blueberry germplasm (varieties) with high pH tolerance were evaluated and screened out. 【Result】It was observed that the mature leaves of most of the blueberry varieties in this study would appear green patches when the soil pH was >6.5, and the SPAD values of different blueberry leaves under the soil pH 7.5 were significantly lower than those under the CK treatment. By determining the processing blueberry growth index found that under high soil pH on the growth of blueberries to some extent, the influence of the different varieties of the blueberry plant height and crown growth of two indicators present along with the change of soil pH and the rise of

the trend, and its change are greatly influenced by soil pH, and the number of stems and branches under the different soil pH changes small.【Conclusion】Overall, in this experiment, the growth performance of high-pH tolerance of blueberries from the central and southern highbush was better than that of blueberries from the rabbit eye and the northern highbush. Among the 15 blueberry varieties, Powderblue, Baldwin, Zhaixuan 7, Zhaixuan 9, Sharpblue, Legacy and Bluegold showed better adaptability to high soil pH. Plant height, crown width and leaf SPAD value can be used as the identification indexes to screen blueberry's tolerance to high soil pH.

Key words: Blueberries; high soil pH; growth evaluation; germplasm screening