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不同磷素水平下大豆叶片超显微结构的观察(PDF)分享

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Title: Observation of Soybean Ultrastructure with Different Phosphorous Treatments

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关键词: 大豆; 磷效率; 超显微结构

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摘要: 利用筛选获得的表现稳定的磷高效基因型和磷低效基因型大豆品种各4个为材料,在不同供磷水平条件下培养至盛花期,取大豆生长点以下第二片复叶中向叶进行超显微结构观察。结果表明:无论磷高效还是磷低效基因型品种随着施磷量的增加,叶片上单位面积气孔数目、气孔大小以及气孔开度均有所提高。在低磷处理下,磷高效基因型品种的气孔大小小于磷低效基因型品种,但气孔开度大于磷低效基因型品种,磷高效基因型品种低磷处理及中磷处理的单个叶肉细胞内叶绿体数量显著高于磷低效基因型品种,而高磷处理单个叶肉细胞内叶绿体数量则显著低于磷低效基因型品种。磷低效基因型品种随着磷肥施入量的增加,叶绿体的数量有所增加,且叶绿体形态较规则。对于磷高效基因型品种而言,高量的磷肥对叶绿体可能有一定的毒害作用,叶绿体破坏较为严重。因此,针对不同磷效基因型大豆合理地施用磷肥能有效改善叶片气孔及叶绿体的超显微结构,提

Abstract: Eight soybean cultivars with different P efficiency were cultivated until flowering in 3 P levels(0, 640 and 960 mg·kg⁻¹) and then took the mid-leaf of the second ternate for ultrastructure observation. The result showed that with the increase of P amount, the stoma number, size and aperture in unit leaf area of high or low P efficiency cultivars were increased. Under P₀ control, the stoma size of high P efficiency cultivar was smaller than low P ones, but the aperture was bigger than low P cultivars. The chloroplast number in single mesophyll cell of high P efficiency cultivars in low and middle P levels were significantly higher than low P efficiency ones, but opposite in high P treatment. With the increase of P amount, the chloroplast number was increased with regular shape. However, a large amount of P fertilizer may be harmful to the chloroplast of high P efficiency genotypes and destroyed chloroplast shape seriously. In conclusion, scientifically P utilization could improve the ultra microscopic structure of stomata and chloroplast, finally increase the efficiency of photosynthesis.

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