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摘要： 阐明大豆适应难溶性磷胁迫的生理反应，对筛选和培育磷高效基因型大豆工作具有重要意义。采用砂培和水培试验研究了大豆利用难溶性磷源的基因型差异及其生理指标的变化。结果表明：难溶性磷处理下大豆植株磷浓度和含磷量都显著低于高磷处理（P<0.05），不同基因型大豆的磷浓度和含磷量表现出较大的差异。难溶性磷诱导下，大豆叶片酸性磷酸酶增加；在处理后期，叶片丙二醛（MDA）含量远高于高磷对照；Ca-P和Fe-P处理下，植株磷浓度与叶片酸性磷酸酶呈极显著负相关。

Abstract: Studying the adaptation of soybean plant to low P stress was very important for screening or breeding P-efficient soybean genotypes.A sand culture and a solution culture experiment were conducted to study the genotypic discrepancy and physiology variation of soybean in using insoluble phosphates.The results showed that the P concentration and uptake in insoluble phosphates treatment were lower than that in high phosphates treatment(P<0.05),and there were differences in phosphorus concentration and uptake among different soybean genotypes.The insoluble phosphate induced the increase of acid phosphatase (APA) in leaf and root.At late stage of insoluble phosphates treatment,the malondialdehyde (MDA) content of soybean was higher than that in high phosphates treatment,indicating that P deficiency stress could lead to the accumulation of superoxide free radical and the increase of membrane lipid peroxidation.In Ca-P and Fe-P treatment,the plant P concentration had very significant negative correlation with leaf APA.

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