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摘要: 采用聚乙二醇(PEG)6000模拟干旱的试验方法,从分离自黄淮海地区的19株根瘤菌和2株参比菌株中初步筛选得到能够在该条件下生长良好的根瘤菌7株。进一步进行土壤盆栽干旱胁迫复筛试验,通过根瘤数量、大豆植株干重和含氮量等指标分析,获得了3株耐旱根瘤菌株B. japonicum 4788、B. japonicum 4792和B. japonicum USDA110;测定了在盆栽条件下接种B. japonicum 4792大豆植株耐旱性相关生理的指标,与未接种对照相比,接种根瘤菌的大豆叶片中甜菜碱、SOD酶和叶绿素的含量都有不同程度的增加,丙二醛的含量减少,表明接种根瘤菌可以提高大豆的耐旱性能。

Abstract: Seven soybean Rhizobia strains were screened under simulated drought with PEG-6000 from 21 Rhizobia strains (including two reference strains), which were isolated from Huanghuaihai area. Subsequently, three strains of B. japonicum 4788, B. japonicum 4792 and B. japonicum USDA110 were selected by their performance of nodulation and nitrogen fixing under drought stress including nodule numbers, plant dry weights and total N contents in soil pot experiment with simulated drought environment. Several parameters related with drought resistance of plant were determined when B. japonicum 4792 was inoculated under the condition mentioned above. The results showed that the contents of betaine, chlorophyll and SOD in plant were increased but MDA was decreased compared with the uninoculated control, which were beneficial for accumulation of drought-resistance materials and improvement of drought-resistant for soybean plant.

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