

研究论文

糖蜜草 (*Melinis minutiflora* Beauv.) 内生固氮菌分离鉴定

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摘要 糖蜜草(*Melinis minutiflora* Beauv.)是热带地区的一种优良牧草。采用选择性培养基在厌氧和好氧两种培养条件下, 从糖蜜草根、茎中都分离得到具有较强固氮酶活性的菌株。通过SDS-PAGE全细胞蛋白电泳技术快速聚类分析表明, 来源于糖蜜草中的菌株为同一类群。16S rDNA序列分析和总DNA的G+C%含量进一步确定糖蜜草中所分离的菌株属于固氮螺菌属(*Azospirillum*), 与产脂固氮螺菌(*Azospirillum lipoferum*)亲缘关系较近。BIOLOG板测定结果显示, 糖蜜草菌株TMCY243对多种碳源具有很强的适应性, 与产脂固氮螺菌(*A. lipoferum*)的模式菌株DSM 1691存在着较大的差异。以上结果表明, 糖蜜草内生固氮菌为固氮螺菌属的一个新类群。

关键词 [内生固氮菌](#); [糖蜜草](#); [固氮螺菌](#); [BIOLOG](#); [系统发育](#)

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Characterization of endophytic diazotrophs isolated from molasses grass

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Abstract Molasses grass (*Melinis minutiflora* Beauv.) is a good fodder in tropical area. In this study, endophytic bacteria with high nitrogenase activity were isolated from the roots and stems of molasses grass grown in Guangdong province by using a selective medium under anaerobic or aerobic conditions. SDS-PAGE of whole-cell proteins clustered all the 15 isolates into a single group. 16S rDNA sequence analysis showed that these isolates belonged to the genus *Azospirillum*, and were closely related to *A. lipoferum*. BIOLOG test indicated that the representative strain, TMCY243, from molasses grass was able to utilize a wider range of carbon sources than the type strain DSM 1691 of *A. lipoferum*. Based on these results, we concluded that the endophytic diazotrophs isolated from molasses grass represented a new species of *Azospirillum*. This bacterium distributed widely in association with its host plant in the subtropic regions of China.

Key words [endophyte](#) [diazotroph](#) [molasses grass](#) ([Melinis minutiflora Beauv.](#)) [Azospirillum](#); [BIOLOG](#); [Phylogeny](#)

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