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鱼腥藻(Anabaena 7120) DNA的转化作用

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摘要 用化学方法从固氮蓝藻鱼腥藻(Anabaena 7120) 细胞中有效地提取了DNA，以此为供体DNA，用它的氧敏感固氮突变种鱼腥藻-1(Anabaena-1)为受体进行转化实验。在大量的转化实验中，仅有两次获得转化后的突变种在空气中、在无氮培养基上能生长，其转化频率为10 -6——10 -5。转化子在有氧条件下的乙炔还原活力相当于野生种。它表明突变种的除氧系统通过转化而得到恢复。推测鱼腥藻7120突变种可能具有吸收和整合外源DNA的能力。对丝状蓝藻转化困难的原因进行了探讨，结果表明受体藻胞外DNA酶活力水平高于其他单细胞蓝藻，这可能是影响有效地转化作用的重要原因之一。

关键词

分类号

Heterocystous Anabaena 7120 DNA in Transformation

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Abstract

In our transformation experiments,the DNA was isolated chemically from cell of heterocystous Anabaena 7120,and was used as donor.Oxygen sensitive nitrogen-fixing mutant of the Anabaena 7120¡ª¡ªAnabaena-1 was used as recipient.In many tests,only two of them showed positive results.The transformants were capable of growing in a medium without combined nitrogen sources under air condition.Their acetylene reduction activity was similar to that of the wild-type.The results showed that the oxygen-scavenging system was recovered by transformation in the oxygen-sensitive mutant¡ª¡ªAnabaena-1 The transformation frequency is about 10-6 ¡ª¡ª10-5.It is concluded that mutant of the Anabaena 7120 possesses and ability for the uptake and integration of exogenous DNA.The difficulties of transfor-mation in heterocystous filamentous Anabaena7120 were discussed.The higher extracellular deoxyribonuclease activity of the recipient may be one of the major factors.

Key words

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