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高产PUFAs深黄被孢霉菌株的筛选

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摘要 以深黄被孢霉(*Mortierella isabellina* As3.3410)为出发菌株, 经微波诱变和紫外诱变, 乙酰水杨酸与低温(15℃)相结合的筛选方法, 获得 1 株高产多不饱和脂肪酸菌株 A35-4, 其生物量为 17.9 g/L, 油脂含量为 67.8%, 油脂产量为 12.12 g/L, PUFAs 含量为 20.3%, PUFAs产量为 2.46 g/L, 上述指标比原始菌株 A0 分别增加 32.6%、49.8%、98.69%、14.0%和125.7%。连续斜面传代培养证实该菌株具有较好的遗传稳定性。本研究为直接利用该菌株生产 PUFAs 以及克隆高效PUFAs 相关基因, 创造高含 PUFAs 转基因植物材料奠定基础。

关键词： 深黄被孢霉 紫外诱变 微波诱变 抗性筛选

Abstract： The original strain *Mortierella isabellina* As3.3410 was treated by microwave and ultraviolet. Mutated strains were screened by acetyl salicylic acid and low temperature (15° C). A high-yield strain named as A35-4 was successfully selected. The biomass of this strain was 17.9 g/L, oil content was 67.8%, oil production was 12.12 g/L, polyunsaturated fatty acids (PUFAs) content was 20.2%, and production of PUFAs was 2.46 g/L, which increased 32.6%, 49.8%, 98.69%, 14.0%, and 125.7% compared with the original A0 stain, respectively. The continuous slope transmission experiments confirmed that the strain had a good genetic stability. The study is beneficial for cloning high efficiency genes for PUFAs and producing PUFAs in this stain, and lays the ground work for creation of transgenic plants containing high levels of PUFAs.

Keywords： *Mortierella isabellina*, UV irradiation, microwave irradiation, resistance screening

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