

提高产抗生素链霉菌紫外诱变正变率的研究 Studies of Increasing the Forward-mutation Rate of UV Irradiated Streptomyces sp. AP 19-1, an Antibiotics Producing Strain

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摘要

将UV诱变了产抗生素链霉菌 (Streptomyces sp.) AP 19-1菌株之孢子, 置于适宜的生长温度27℃与接近抑制生长的胁迫温度33℃下培养, 结果表明: 在33℃下生长获得的子代菌株中, 产抗生素水平超过其出发菌株的正向突变体所占的比例, 明显比在27℃下培养的高。27℃下培养, 正向突变体占总子代菌株数的25.8%, 而在33℃下培养则为58.1%。用17种随机引物对出发菌株与UV诱变子代菌株进行总DNA的RAPD测验证明, 在接近抑制生长的温度33℃下培养获得的子代, 发生在其DNA水平上的变异程度比在27℃的要高得多。这一方法能较大幅度提高链霉菌紫外诱变育种的工作效率, 同时也为链霉菌经紫外诱变后突变形成机制的进一步研究提供了新途径。Abstract: UV irradiated spores of Streptomyces sp. AP 19-1 strain that can produce antibiotics were incubated at 27 °C, and 33 °C which is close to inhibiting growth temperature, respectively. The results showed that there were much more forward mutants, whose level of producing antibiotics is higher than that of original strain, among the offspring of UV irradiated spores grown at 33 °C, compared to that grown at 27 °C. The percentage of the forward mutants was 25.8 % at 27 °C and 58.1% at 33 °C. The progeny strains and the original strain were tested by RAPD using total DNA with 17 primers. It was demonstrated that more variations occurred in the chromosomal DNA of the progeny strains grown at 33 °C than in that at 27 °C. This method facilitates increasing the efficiency of induced mutagenesis in breeding and provides a new way to study the mechanisms of mutation formation in UV irradiated Streptomyces sp. cells.

关键词 [紫外诱变](#) [链霉菌](#) [正突变体](#) [RAPD](#) Key words [UV mutation](#) [Streptomyces](#) [forward-mutant](#) [RAPD](#)

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