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棉酚降解菌株的分离、筛选及鉴定

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Screening and Identification of Gossypol-degraded Strains Isolated from a Soil Microcosm

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摘要 以醋酸棉酚为唯一碳源，从土壤中筛选到2株棉酚降解菌，命名为MM-2及RP-3。经形态学及分子生物学鉴定：MM-2与基因登录号为AF219122.1（*Fusarium oxysporum*）的同源性达93%，推测MM-2属于镰刀菌属；RP-3与EU294522.1（*Rhodotorula mucilaginosa*）的同源性达92%，故此推测RP-3属于红酵母属。棉酚降解菌在不同碳源及温度条件下生长试验表明：MM-2在葡萄糖中生长好于在棉酚中，葡萄糖中最适取种时间为48~72 h，棉酚中最适取种时间为60~84 h，最适生长温度均为30℃；RP-3在葡萄糖中的最适取种时间为24~48 h，最适生长温度在25~30℃之间。RP-3在棉酚中生长时，由于醋酸棉酚本身为黄色晶体，影响了OD值的结果，但仍能显示出对棉酚具有降解作用。

关键词： 棉酚 生物降解 菌种鉴定 生长

Abstract： Two new strains named MM-2 and RP-3 were isolated from a soil microcosm and investigated due to the finding that they could degrade free-gossypol on agar plates. Through the morphological and molecular biological identification, MM-2 was confirmed homologous with *Fusarium oxysporum* as high as 93%, presumably that it might belong to *Fusarium*. RP-3 was confirmed homologous with *Rhodotorula mucilaginosa* as high as 92%, presumably that it might belong to *Rhodotorula*. The growth characters of gossypol-degraded strains in different carbon sources，at different temperatures were compared. The results showed that the optimal incubation conditions of MM-2 were 48~72 h at 30℃ in glucose medium and 60~84 h at 30℃ in gossypol medium. The optimum growth conditions of RP-3 were 24~48 h at 25~30℃ in glucose medium. The OD value of RP-3 in gossypol medium could not be studied exactly because of the presence of gossypol which is a yellow pigment, however, the degradation of gossypol by strain RP-3 was in evidence.

Keywords： gossypol biodegradation identification growth

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