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Characterisation of a novel aerobic nicotine-biodegrading strain of *Pseudomonas putida*

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Abstract - An aerobic bacterial strain J5 capable of effectively degrading nicotine was isolated from the rhizosphere of tobacco in Yunnan, China. This strain was identified as *Pseudomonas putida* based on morphology, physiological characteristics, and 16S rDNA sequence analysis. The optimum nicotine concentration for the growth of strain J5 was 2.0 g/l. There was no more nicotine detected in the medium containing 3.0 g of nicotine/l after J5 growth for 24 h and less than 0.2% of the nicotine in a medium containing 4.0 g of nicotine/l after J5 growth for 48 h. There was a statistically significant linear relationship between nicotine degradation and biomass of strain J5. When a J5 cell suspension (10^8 CFU/ml) was applied to tobacco leaves, the nicotine concentration was decreased by 11.7%. These data suggest that the novel strain J5 of *P. putida* may be useful for nicotine biodegradation.

Key words: biodegradation, tobacco, nicotine, *Pseudomonas putida.*

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