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| 摘要(中) | 本研究針對台灣地熱區進行嗜熱性微生物之研究，由台灣東部的上里溫泉中，篩選出一株可生長於 50 oC 的黃色菌落菌株 NTU-1589。藉細菌 16S rDNA 保守片段的擴增及序列的比對，發現與已發表菌株 Thermomonas haemolytica A50-7-3T 相似度為 94.5 %，與 Pseudoxanthomonas taiwanensis CB-226T 和 Lysobacter gummosus LMG 8763T 相似度均為 94.2 %。利用形態觀察、生理、生化以及遺傳特性分析，發現有不同於標準菌株的地方。其菌株呈桿狀、為格蘭氏陰性細菌、具有單一端鞭毛；生長溫度範圍為 30 oC 到 50 oC，最適生長溫度為 50 oC；生長酸鹼值範圍為 pH 6-10，最適酸鹼值為 pH 8；耐鹽度為 1 %，在培養 |

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| | 基含 2 % NaCl 則無生長現象；能利用、D-Galactose、D-Melibiose、myo-Inositol 當作生長的單一碳源；具有 a-glucosidase、elastinase 活性；脂肪酸組成主要為 C16:0 、C16:0 iso 和 C18:0；對於抗生素 Polymyxin B 具有抗性：DNA G+C 含量為 68.7 mol %。藉由上述差異及親緣關係樹的建立，推測 NTU-1589 為 Pseudoxanthomonas 屬之新種菌株。 |
| **摘要 (英)** | This study is aimed to research the thermophile from hot springs in Taiwan. One yellow pigmented organism with growth temperature around 50 oC, was isolated from hot springs named Shang-Li in Taitung. According to the res $\mu$ lt of 16S rDNA sequence analysis, the strain showed 94.5 % to Thermomonas haemolytica A50-7-3T and 94.2 % sequence similarity to Pseudoxanthomonas taiwanensis CB-226T and Lysobacter gummosus LMG 8763T. There are differences between the strain NTU-1589 and type strains on morphological observation, physiological, biochemical and genetic analyses. The strain was gram-negative rods and had a polar flagellum. Growth occurs between 30 oC and 50 oC, with optimal temperature at 50 oC. The pH range for growth was 6-10, with an optimal at pH 8. Growth does not occur in modified thermus plate contain 2 % NaCl. The isolate can utilize D-Galactose, D-Melibiose and myo-Inositol, and have $\alpha$ -glucosidase and elastase activities. The major composition of fatty acids are C16:0, C16:0 iso and C18:0. It is resistant to polymyxin B. The DNA G+C contain is 68.7 mol %. Based on these differences and phylogenic tree, the strain NTU-1589 co $\mu$ ld be considered as novel species related to the genus of Pseudoxanthomonas. |
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| **參考文獻** | 時雨青 2005 臺灣地熱區 Silanimonas-like 新穎嗜熱性 proteobacteria 之研究。國立臺灣大學植物學研究所碩士論文 陳懋彥 2002 臺灣嗜熱性細菌之研究。國立臺灣大學植物學研究所博士論文 劉智興 2000 自田間篩選優良之異營性脫氮菌。國立臺灣大學植物學研究所碩士論文 Aguilar, A., T. Ingemansson, and E. Magnien. 1998. Extremophile microorganisms as cell factories: support from the European Union. Extremophiles 2:367-373. Alfredsson, G. A. and J. K. Kristjansson. 1995. Ecology, distribution, and isolation of Thermus. In Thermus species, pp. 43-63. Edited by R. Sharp and R. A. D. Williams. New York: Plenum Press. Amarger, N., V. Macheret, and G. Laguerre. 1997. Rhizobium gallicum sp. nov. and Rhizobium giardinii sp. nov., from Phaseolus v μ lgaris nod μ les. Int J Syst Bacteriol 47:996-1006. Anderson, I. C., M. Poth, J. Homstead, and D. Burdige. 1993. A comparison of NO and N2O production by the autotrophic nitrifier Nitrosomonas europaea and the heterotrophic nitrifier Alcaligenes faecalis. Appl Environ Microbiol 59:3525-3533. Barnes, J. M., W.A. Apel, K.B. Barret. 1995. Removal of nitrogen oxides from gas streams using biofiltration. J. Hazard. Mater 41:315-326. Brock, T. D., and H. Freeze. 1969. Thermus aquaticus gen. n. and sp. n., a nonspor μ lating extreme thermophile. J Bacteriol 98:289-297. Busse, H. J., P. Kampfer, E. R. Moore, J. Nuutinen, I. V. Tsitko, E. B. Denner, L. Vauterin, M. Valens, R. Rossello-Mora, and M. S. Salkinoja-Salonen. 2002. Thermomonas haemolytica gen. nov., sp. nov., a gamma-proteobacterium from kaolin slurry. Int J Syst Evol Microbiol 52:473-483. Buyer, J. S. 2002a. Identification of bacteria from single colonies by fatty acid analysis. J Microbiolog Methods 48:259-265. Buyer, J. S. 2002b. Rapid sample processing and fast gas chromatography for identification of bacteria by fatty acid analysis. J Microbiol Methods 51:209-215. Cappuccino, J. G. and N. Sherman. 1998. Microbiology: A Laboratory Manual. 5th ed. The Benjamin/Cummings Publishing Company, Inc., New York. Chen, M. Y., G. H. Lin, Y. T. Lin, and S. S. Tsay. 2002a. Meiothermus taiwanensis sp. nov., a novel filamentous, thermophilic species isolated in Taiwan. Int J Syst Evol Microbiol 52, 1647-1654. Chen, M. Y., S. S. Tsay, K. Y. Chen, Y. C. Shi, Y. T. Lin, and G. H. Lin. 2002b. Pseudoxanthomonas taiwanensis sp. nov., a novel thermophilic, N2O-producing species isolated from hot springs. Int J Syst Evol Microbiol 52, 2155-2161. Chen, M. Y., S. H. Wu, G. H. Lin, C. P. Lu, Y. T. Lin, W. C. Chang, and S. S. Tsay. 2004. Rubrobacter taiwanensis sp. nov., a novel thermophilic, |

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