表1：96-PH076、96-PH077之生化性狀

Gram stain	—	Arginine dihydrolase	+
Oxidase	+	Ornithine decarboxylase	—
Catalase	+	Tryptophan deamimas	—
Motility	—	Gelatinase	—
TSI	K/A	O/129	+
H_2S Production	—	Acid probuction from：	
Nitrate reduction	—	arabnose	—
OF(glucose)	F	inositol	—
Citrate utilization	—	dulcitol	—
Urea	—	glucose	+
ONPG test	—	mannose	—
Indole	—	lactose	—
VP	+	Sucrose	—
Growth on		maltose	—
TCBS	—	mannitol	—
MacConkey(with 3% NaCl)	+	Rhamnose	—

表2：藥物敏感性試驗結果

藥物名稱		有效範圍	抑制圈大小（mm）
（濃度）	（mm）	96-PH076	96-PH077
Amoxycillin/ciavulanic acid 2：1（30 mcg）	≧18	15	14
Ampicillin（10 mcg）	≧17	20	26
Doxytetracycline（30 mcg）	≧19	13	13
Erythromycin（15 mcg）	≧23	20	18
Oxolinic acid（2 mcg）	≧11	24	20
Lincomycin（2 mcg）		13	13
Oxytetracycline（30 mcg）	≧19	—	—

三、分子生物學檢驗：

1.16S rDNA聚合酶鏈鎖反應（PCR）檢測：萃取96-PH076及96-PH077之DNA作為模板，以Car1、Car2及Ure1、Ure2兩對Primers，進行16S rDNA之PCR反應，結果產物為267bp。

Forward primer Car1 (18-mer 5'-GCTTGAAGAGATTCGAGT-3')

Reverse primer Car2 (18-mer 5'-CACCTCGCGGTCTTGCTG-3')

Forward primer Ure1 (20-mer 5'-TCCGGAATAGGTAAAGCGGG -3')

Reverse primer Ure2 (22-mer 5'-CTTGAATATCCATCTCATCTGC -3')

2.基因序列比對：將本病例所分離到之96-PH076及96-PH077兩株菌株之DNA序列，上NCBI比對結果與*Photobacterium damselae* subsp.*piscicida* 100 %相符（如表3）。

表3：96076 and 96077上NCBI比對結果

Sequences producing significant alignments:
(Click headers to sort columns)

Accession	Description	Max score	Total score	Query coverage	E value	Max Ident
AY163244.1	Photobacterium damselae subsp. piscicida strain CVD5 16S ribosomal	928	928	100%	0.0	100%
AY163243.1	Photobacterium damselae subsp. piscicida strain CVD4 16S ribosomal	928	928	100%	0.0	100%
AY147860.1	Photobacterium damselae subsp. piscicida strain PN510 16S ribosoma	928	928	100%	0.0	100%
AY147859.1	Photobacterium damselae subsp. piscicida strain I736 16S ribosomal I	928	928	100%	0.0	100%
AY147858.1	Photobacterium damselae subsp. piscicida strain K12 16S ribosomal R	928	928	100%	0.0	100%
AY147857.1	Photobacterium damselae subsp. piscicida strain CVD3 16S ribosomal	928	928	100%	0.0	100%
AY147856.1	Photobacterium damselae subsp. piscicida strain CVD1 16S ribosomal	928	928	100%	0.0	100%
Y18496.1	Photobacterium damselae 16S rRNA gene	924	924	100%	0.0	99%
DQ530294.1	Photobacterium damselae strain UCP4 16S ribosomal RNA gene, parti	922	922	100%	0.0	99%
DQ915581.1	Photobacterium damselae strain PB02 16S ribosomal RNA gene, parti.	922	922	100%	0.0	99%
AY163245.1	Photobacterium damselae subsp. piscicida strain CVD6 16S ribosomal	922	922	100%	0.0	99%
AY147861.1	Photobacterium damselae subsp. damselae strain CCRC15428 16S rit	922	922	100%	0.0	99%
DQ146992.1	Vibrio sp. V781 16S ribosomal RNA gene, partial sequence	922	922	100%	0.0	99%
AB032015.1	Photobacterium damselae subsp. damselae gene for 16S rRNA, partia	922	922	100%	0.0	99%
AB032014.1	Photobacterium histaminum gene for 16S rRNA, partial sequence	922	922	100%	0.0	99%
X74700.1	V.damsela (ATCC 33539T) gene for 16S ribosomal RNA	917	917	100%	0.0	99%
AB062552.1	Photobacterium damselae gene for 16S rRNA, partial sequence, strair	917	917	99%	0.0	99%
AB166849.1	Photobacterium damselae gene for 16S ribosomal RNA, partial sequer	913	913	99%	0.0	99%
AY191124.1	Photobacterium damselae subsp. piscicida strain H 16S ribosomal RNA	909	909	98%	0.0	100%

3.親緣關係比對：利用DNA Star中Jotun Hein method，將本病例菌株96-PH076及96-PH077與基因庫（GenBank）上登錄之CVD1~5等5株*Photobacterium damselae* subsp. *pisicida*菌株及CCRC 15428為*Ph. damselae* subsp. *damselae*，比對分析他們之間16S ribosomal RNA gene的相似性及親緣關係（如表4及圖9）。

表4：96-PH076及96-PH077與CVD1~5及CCRC 15428間之相似度

Percent Identity

	1	2	3	4	5	6	7	8	
1		100.0	100.0	99.2	100.0	100.0	100.0	99.8	1
2	0.0		100.0	99.2	100.0	100.0	100.0	99.8	2
3	0.0	0.0		99.2	100.0	100.0	100.0	99.8	3
4	0.8	0.8	0.8		99.2	99.2	99.2	99.0	4
5	0.0	0.0	0.0	0.8		100.0	100.0	99.8	5
6	0.0	0.0	0.0	0.8	0.0		100.0	99.8	6
7	0.0	0.0	0.0	0.8	0.0	0.0		99.8	7
8	0.2	0.2	0.2	1.0	0.2	0.2	0.2		8
	1	2	3	4	5	6	7	8	

Divergence

1 96077
2 96076
3 CVD1 AY147856
4 CVD2 AY163242
5 CVD3 AY147857
6 CVD4 AY163243
7 CVD5 AY163244
8 CCRC15428 Pdsd

註：96076，96077為本病例分離得之菌株
CVD1~5為*Photobacterium damselae* subsp. *pisicida*
CCRC 15428為*Ph. damselae* subsp. *Damselae*.