

Symbiobacterium

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- 1.
- 2.
3. HPLC, FPLC bioassay
4. 16S rRNA chemotaxonomy
- 5.
- 6.

1.

5%
가
가
chromosome cell wall
10 TPL(Tyrosine phenol-lyase)
TNA(Tryptophan indole-lyase) activity mixed culture enzyme
2 (strain SK-1 SC-1)
strain SC-1
가 SK-1 *Bacillus* sp. SC-1
가 symbiosis
(commensalism)

2.

가
strain SC-1
Bacillus sp. SK-1
1:1 cell pellet extract 가 (1% v/v)
가
polypeptone yeast extract 가 colony
가 strain SC-1 colony 가
microaerophilic
polypeptone yeast extract
pH 7.5,
60. C (10 %)
spectrophotometer
viable count
가 colony

가

Bacillus sp. SK-1
single colony

가 ()

SC-1 single colony 0.1 mm

single colony pick-up gram

tryptophan indole-lyase 가

SC-1 가 SC-1 가

가 45 70 , 가 60

(0.2)

1 5 , 0.2 0.3

가

16S rDNA

Geobacillus stearothermophilus 88.5%

가

(2000-10508 PCT/KR00/00764)

Extremophiles (4 , 131-136, 2000)

3. HPLC, FPLC bioassay

SK-1 SC-1 SK-1 stationary phase SK-1 lysis SC-1 *Bacillus* sp.

SC-1 *Bacillus* sp. SK-1

가 SC-1 SK-1
Bacillus sp. SK-1

Bacillus sp. SK-1 SC-1 가 1,000

60,000

SK-1 lysis

가 가 stationary phase

Bacillus sp. SK-1 carbons source (glucose, succinate, acetate, glycerol, glutamate)
minimal media
chromatography

4. 16S rRNA chemotaxonomy

strain SC-1 flagella 가 0.1-0.2 × 2-10 μ
m . peptidoglycan meso DAP
, quinone menaquinone-7 .
phosphatidylethanolamine branched form straight
form . 16S rRNA
, *Symbiobacterium toebii* SC-1 16S rRNA data bank
group . Gram
negatively stained phylogenetic tree Gram positive group
. , high GC (68.4%) , tree low GC gram
positive group (*Bacillus*/*Clostridium* subphylum)
(speices) Extremophiles [(2002) 6: 57- 64]

, strian SK-1 2001
Geobacillus sp. (*Bacillus* group 5가) ,
Geobacillus toebii , Journal of
Systematic and Evolutionary Microbiology (IJSEM) , .

5. _____.

genome genome 가
genome 가 genome , 가
가 가 .
[(,
가)] Bio Cluster ()

가 *Symbiobacterium toebii*
genome genome
Genome *S. toebii* 340 4,100
homology COG Blast , 50%가
50%
genome ORF
annotation 'Massive Work' , ORF
ORF
full genome sequencing ,
genome
가 Protein chip, Genomic Library Kit,
Two-hybridization system

6. _____

1. Sung-Keun Rhee, Che Ok Jeon, Jin-woo Bae, Kwang Kim, Jae Jun Song, Joong-Jae Kim, Seung-Pyo Hong, Seung-Goo Lee, Hong-IK Kim, Yoon-Ho Choi, Su-Mi Kim, and Moon-Hee Sung (2002) Characterization of *Symbiobacterium toebii*, an obligate commensal thermophile isolated from compost. *Extremophiles* **6**: 57-64
2. Sung-Keun Rhee, Seung-Goo Lee, Seung-Pyo Hong, Yoon-Ho Choi, Jong-Hoon Park, Chul-Joong Kim, and Moon-Hee Sung (2000) A novel microbial interaction: Obligately commensalism between a new gram-negative thermophile and a thermophilic Bacillus strain. *Extremophiles*, **4**: 131-136
3. Rhee, Sung-Keun, Seung-Pyo Hong, Jin-Woo Bae, Che-Ok Jeon, Seung-Goo Lee, Jae Jun Song, Haryoung Poo, and Moon-Hee Sung (2001) Estimation of Distribution of a Commensal Thermophile in Soil by Competitive Quantitative PCR and Terminal Restriction Fragment Length Polymorphism Analysis *J. Microbiol. Biotechnol.* **11(6)**: 940-945
4. Hong, Seung-Pyo, Jong-Hoon Park, Yong-Sung Kim, Hae-Jun Hwang, Sung-Keun Rhee, Seung-Goo Lee, and Nobuyoshi Esaki (2000) Analysis of the genome of *Symbiobacterium*

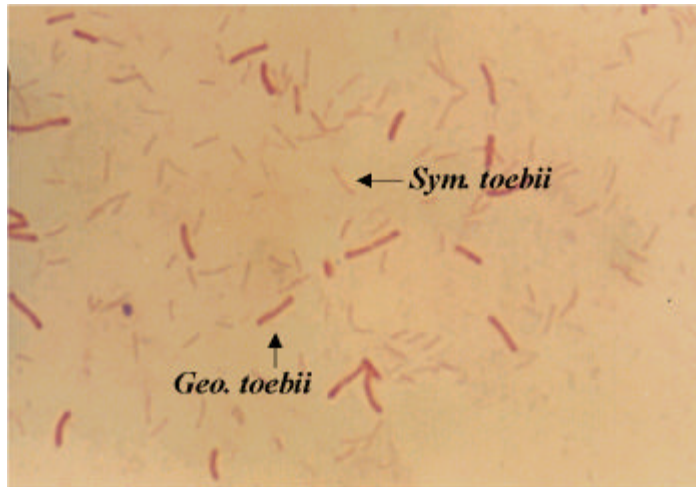


Fig. 1. *Symbiobacterium toebii* (*Sym. toebii*)
toebii (*Geo. toebii*)

Geobacillus

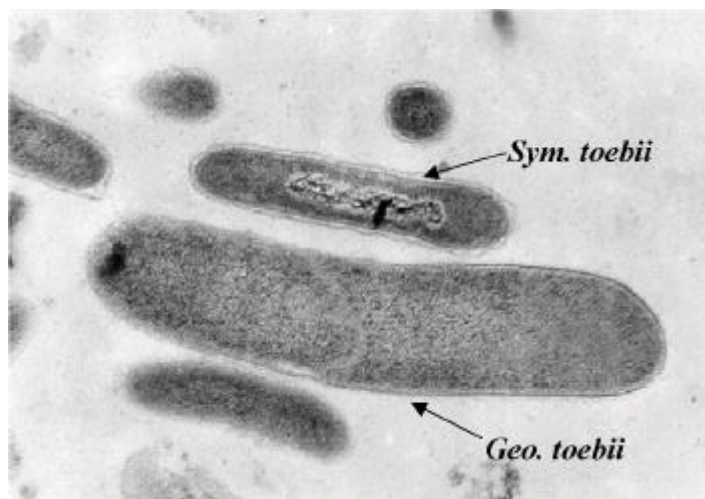


Fig. 2. *Symbiobacterium toebii* (*Sym. toebii*)
toebii (*Geo. toebii*) (TEM)

Geobacillus

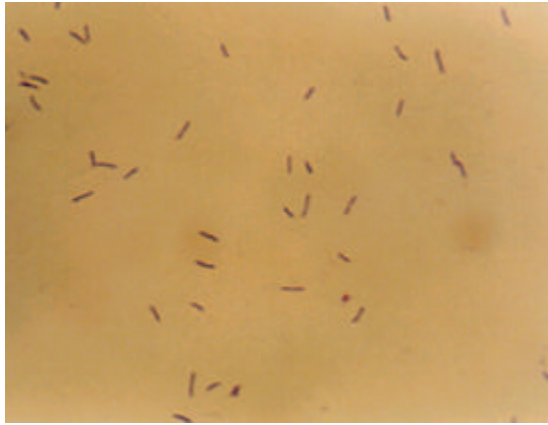


Fig. 3. *Symbiobacterium toebii*

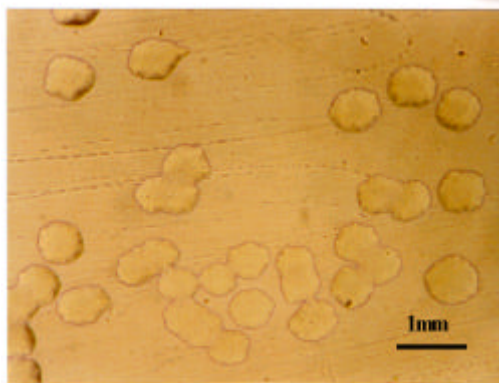
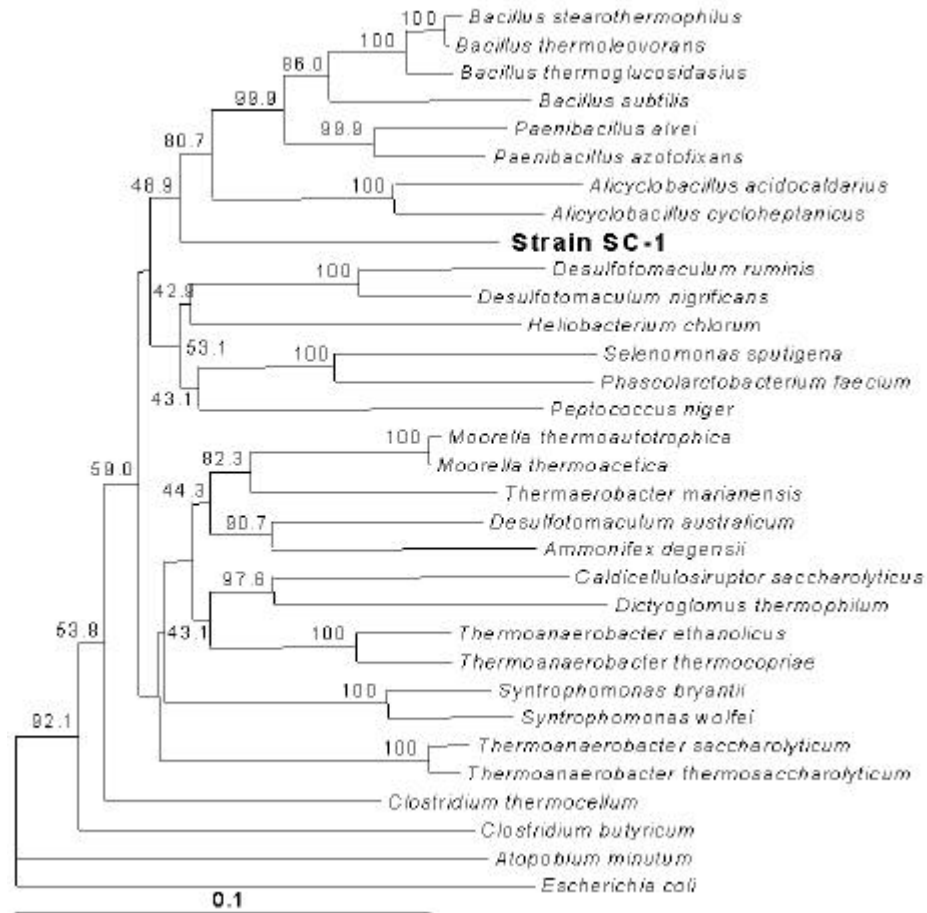


Fig. 4. (*Symbiobacterium toebii*)



Fig. 5. (*Symbiobacterium toebii*, *Sym. toebii*) (TEM)



6. Neighbor-Joining (NJ)

" Biowave "

" BioWave "

(<http://bric.postech.ac.kr/webzine>) 2002 4 "

(mail: biowave@bric.postech.ac.kr Tel: 054-279-8197~8)

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