Table S2 Taxonomy information about strains obtained from the studied Pond.

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| --- | --- | --- | --- | --- | --- | --- |
| *Phylum* | Genus (RDP classifier) | Strains | NCBI best hit | | | |
| **Species** | **Coverage (%)** | **Identity (%)** | **Accession** |
| *Actinobacteria* | *Arthrobacter* | ANT\_WB13; ANT\_WB55; ANT\_WB85; ANT\_WB88 | *Arthrobacter alpinus* strain S6-3 | 100 | 98.39 | NR\_117254.1 |
| ANT\_WB90 | 100 | 98.51 |
| ANT\_WB43; ANT\_WA77; ANT\_WA82 | 99 | 98.66 |
| ANT\_WB89 | *Arthrobacter cryoconiti* strain Cr6-08 | 100 | 98.58 | NR\_108846.1 |
| ANT\_WA45; ANT\_WA71; ANT\_WB56; ANT\_WB62; ANT\_WB71 | *Arthrobacter stackebrandtii* strain CCM 2783 | 99 | 98.26 | NR\_042258.1 |
| ANT\_WB73 | 100 | 98.58 |
| ANT\_WA91; ANT\_WB84; ANT\_WB87 | *Paeniglutamicibacter antarcticus* strain SPC26 | 100 | 98.91 | NR\_115079.1 |
| ANT\_WA86; ANT\_WB69 | *Pseudarthrobacter oxydans* strain DSM 20119 | 100 | 99.18 | NR\_026236.1 |
| *Cryobacterium* | ANT\_WB35 | *Cryobacterium arcticum* strain SK1 | 93 | 99.49 | NR\_108605.1 |
| ANT\_WA20; ANT\_WA21; ANT\_WA24 | *Cryobacterium tepidiphilum* strain NEAU-85 | 100 | 98.02 | NR\_164984.1 |
| *Dietzia* | ANT\_WB102 | *Dietzia schimae* strain YIM 65001 | 99 | 99.54 | NR\_044482.1 |
| *Leucobacter* | ANT\_WA93 | *Leucobacter komagatae* strain IFO 15245 | 100 | 97.76 | NR\_114929.1 |
| *Microbacterium* | ANT\_WB10 | Microbacterium lacus strain A5E-52 | 100 | 98.56 | NR\_041563.1 |
| *Rhodococcus* | ANT\_WB64; ANT\_WB98 | *Nocardia globerula* strain DSM 44596 | 99 | 99.26 | NR\_104795.1 |
| ANT\_WB48 | *Rhodococcus qingshengii* strain djl-6-2 | 99 | 98.22 | NR\_115708.1 |
| ANT\_WA8; ANT\_WA13; ANT\_WA31; ANT\_WA41; ANT\_WB1; ANT\_WB2; ANT\_WB7; ANT\_WB9; ANT\_WB15; ANT\_WB16; ANT\_WB17; ANT\_WB18; ANT\_WB19; ANT\_WB20; ANT\_WB21; ANT\_WB22; ANT\_WB23; ANT\_WB24; ANT\_WB46; ANT\_WA63; ANT\_WA78; ANT\_WB92; ANT\_WB93; ANT\_WB94; ANT\_WB99; ANT\_WB100 | *Rhodococcus yunnanensis* strain YIM 70056 | 98 | 99.17 | NR\_043009.1 |
| ANT\_WB47 | 99 | 97.31 |
| *Salinibacterium* | ANT\_WA32 | *Salinibacterium amurskyense* strain KMM 3673 | 98 | 99.86 | NR\_041932.1 |
| *Sanguibacter* | ANT\_WB5 | *Sanguibacter antarcticus* strain KOPRI 21702 | 98 | 99.93 | NR\_044173.1 |
| *Tomitella* | ANT\_WA70 | *Tomitella biformata* AHU 1821 | 99 | 98.63 | NR\_112905.1 |
| *unclassified* | ANT\_WA43 | Leifsonia rubra strain CMS 76r | 100 | 98.32 | NR\_028012.1 |
| *unclassified Microcococaceae* | ANT\_WB95; ANT\_WB96; ANT\_WB97 | *Neomicrococcus lactis* strain DW152 | 96 | 99.51 | NR\_117033.1 |
| *Bacteroidetes* | *Chryseobacterium* | ANT\_WA14; ANT\_WA26; ANT\_WA28; ANT\_WA55; ANT\_WA74; ANT\_WA83; ANT\_WA87; ANT\_WA94; ANT\_WB58 | Chryseobacterium carnis strain G81 | 97 | 97.71 | NR\_126255.1 |
| ANT\_WB8; ANT\_WB12; ANT\_WB45; ANT\_WB80; ANT\_WB82 | *Chryseobacterium carnis* strain G81 | 97 | 97.36 | NR\_126255.1 |
| ANT\_WB79 | 98 | 97.09 |
| ANT\_WB57; ANT\_WB78; ANT\_WB81 | 98 | 98.20 |
| ANT\_WA56; ANT\_WA72 | *Chryseobacterium palustre* strain NBRC 104928 | 98 | 97.24 | NR\_114271.1 |
| ANT\_WA16; ANT\_WA89; ANT\_WA95 | *Chryseobacterium solincola* strain 1YB-R12 | 98 | 96.86 | NR\_116343.1 |
| *Flavobacterium* | ANT\_WA10;ANT\_WA29 | *Flavobacterium degerlachei* strain NBRC 102677 | 99 | 97.93 | NR\_112815.1 |
| ANT\_WA11; ANT\_WA12; ANT\_WA15 | *Flavobacterium degerlachei* strain R-9106 | 98 | 98.96 | NR\_029009.1 |
| ANT\_WB4; ANT\_WA30; ANT\_WA73 | 98 | 99.31 | NR\_029009.1 |
| ANT\_WA9 | *Flavobacterium frigidarium* | 100 | 97.66 | NR\_025020.1 |
| ANT\_WA27 | *Flavobacterium piscis* strain 412R-09 | 99 | 98.41 | NR\_133746.1 |
| *Hymenobacter* | ANT\_WA1; ANT\_WA2; ANT\_WA3; ANT\_WA7 | *Hymenobacter psychrophilus* strain BZ33r | 100 | 98.16 | NR\_117214.1 |
| *Deinococcus-Thermus* | *Deinococcus* | ANT\_WA4; ANT\_WA5; ANT\_WA6; ANT\_WB39; ANT\_WA54 | *Deinococcus marmoris* strain AA-63 | 100 | 98.63 | NR\_042210.1 |
| *Firmicutes* | *Bacillus* | ANT\_WB30 | *Bacillus frigoritolerans* | 99 | 99.93 | NR\_115064.1 |
| ANT\_WA51 | *Bacillus subtilis* strain DSM 10 | 100 | 100.00 | NR\_027552.1 |
| ANT\_WA75; ANT\_WA76 | *Bacillus zhangzhouensis* strain MCCC 1A08372 | 100 | 99.79 | NR\_148786.1 |
| *Carnobacterium* | ANT\_WB67 | *Carnobacterium funditum* strain NBRC 15549 | 99 | 99.73 | NR\_113773.1 |
| *Jeotgalibaca* | ANT\_WA84; ANT\_WA96; ANT\_WB72 | *Jeotgalibaca dankookensis* strain EX-07 | 95 | 99.65 | NR\_125553.1 |
| ANT\_WA69 | 97 | 98.46 | NR\_125553.1 |
| ANT\_WB65 | 96 | 98.89 | NR\_125553.1 |
| *Planococcus* | ANT\_WB51; ANT\_WB53 | *Planococcus halocryophilus* Or1 | 99 | 99.54 | NR\_118149.2 |
| *Sporosarcina* | ANT\_WA79 | *Filibacter limicola strain* DSM 13886 | 99 | 98.34 | NR\_042024.1 |
| *Trichococcus* | ANT\_WA18; ANT\_WA19; ANT\_WA67 | *Trichococcus pasteurii* strain KoTa2 | 100 | 99.60 | NR\_036793.2 |
| *Viridibacillus* | ANT\_WA17 | *Viridibacillus arenosi* strain LMG 22166 | 99 | 99.93 | NR\_025628.1 |
| *Proteobacteria* | *Brevundimonas* | ANT\_WA23 | *Brevundimonas denitrificans* strain TAR-002 | 99 | 99.06 | NR\_133989.1 |
| *Lysobacter* | ANT\_WA98 | *Lysobacter concretionis* strain Ko07 | 98 | 98.37 | NR\_041003.1 |
| *Pseudomonas* | ANT\_WA33;ANT\_WA38; ANT\_WA39 | *Pseudomonas weihenstephanensis* strain DSM 29166 | 99 | 99.87 | NR\_148764.1 |
| ANT\_WA97 | *Psychrobacter aquimaris* strain SW-210 | 99 | 99.25 | NR\_043140.1 |
| ANT\_WB31 | *Psychrobacter arcticus* strain 273-4 | 100 | 99.66 | NR\_075054.1 |
| ANT\_WB49 | 99 | 99.46 |
| ANT\_WA40; ANT\_WB27; ANT\_WB28; ANT\_WB29; ANT\_WB32; ANT\_WB42; ANT\_WB50, ANT\_WB70 | *Psychrobacter cryohalolentis* K5 | 100 | 99.26 | NR\_075055.1 |
| ANT\_WA100 | *Psychrobacter fulvigenes* strain KC 40 | 100 | 99.93 | NR\_041688.1 |
| ANT\_WA34; ANT\_WA36; ANT\_WA37; ANT\_WB25; ANT\_WB26; ANT\_WA90 | *Psychrobacter maritimus* strain Pi2-20 | 98 | 99.59 | NR\_027225.1 |
| ANT\_WA35; ANT\_WB41; ANT\_WB54; ANT\_WB68; ANT\_WB74 | *Psychrobacter urativorans* strain DSM 14009 | 99 | 98.73 | NR\_042221.1 |
| *Pusillimonas* | ANT\_WB101 | *Pusillimonas ginsengisoli* strain DCY25 | 95 | 98.99 | NR\_116103.1 |
| *Stenotrophomonas* | ANT\_WB33; ANT\_WB34 | *Stenotrophomonas humi* strain R-32729 | 100 | 97.92 | NR\_042568.1 |