Table 1S. List of sequences used in the phylogenetic study (concatenated SSU, ITS and LSU).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Species | Strain | Locality | **SSU** | **ITS** | **LSU** |
| *Heterocapsa arctica* | NCMA445 | North Atlantic, Baffin Bay (76°15'N, 82°33'W) | KF925338 | JQ972677 | AY571372 |
|  | NCMA445 | North Atlantic, Baffin Bay (76°15'N, 82°33'W) | — | AB084095 | — |
| *Heterocapsa arctica* subsp. *frigida* | 755\_1 | Baltic Sea, off Finland: Uusimaa, Raseborg, Hanko, Santala Bay (59°54'N, 23°06'E) | — | HQ875057 | — |
|  | 755\_6 | Baltic Sea, off Finland: Uusimaa, Raseborg, Hanko, Santala Bay (59°54'N, 23°06'E) | — | HQ875058 | — |
| *Heterocapsa bohaiensis* | Isolate 1-14 | Bohai Sea, off China: Liaodong Bay, the coastal water of Panjin (40°51′N, 121°46′E) | — | MF471313 | — |
|  | Isolate 3-2 |  | — | — | MF471315 |
|  | isolate 2-13 | Bohai Sea, off China: Liaodong Bay, the coastal water of Panjin (40°51′N, 121°46′E) | — | MF471314 | — |
|  | isolate 3-3 | Bohai Sea, off China: Liaodong Bay, the coastal water of Panjin (40°51′N, 121°46′E) | — | — | MF471316 |
|  | isolate 4-2 | Bohai Sea, off China: Liaodong Bay, the coastal water of Panjin (40°51′N, 121°46′E) | — | — | MF471318 |
| *Heterocapsa* cf*. bohaiensis* | **19PV100** | New Caledonia (22°39'26.2"S, 167°26'33.4"E) | **OR224571** | **OR224570** | **OR224569** |
| *Heterocapsa busanensis* | LOMME05 | South sea of Korea, Yongho Bay, (35°08′02′′ N, 129°06′53′′ E), Busan | — | MW003709 | MW003725 |
| *Heterocapsa circularisquama* | HA92-1 | n.inf. | — | — | AB049709 |
|  | aihc559-kt |  | — | LC490697 | LC490697 |
|  | OA1 | Sea of Japan, off Japan, Obama Bay: Fukui | — | AB084089 | — |
|  | OK1 | Sea of Japan, off Japan, Obama Bay: Fukui | — | AB084090 | — |
|  | OK3 | Sea of Japan, off Japan, Obama Bay: Fukui | — | AB084091 | — |
|  | n.inf. | n.inf. | — | AB049711 | — |
| *Heterocapsa claromecoensis* | Arg-B5 | Monte Hermoso, Province of Buenos Aires, Argentina. | — | MN509452 | MN509451 |
|  | IS-005 | Claromecó, Province of Buenos Aires, Argentina (38º51’29”S, 60º01’28”W) | — | MK684239 | MK684238 |
| *Heterocapsa horiguchii* | FK6-D47 | western North Pacific, Seto Inland Sea, off Japan: Honshū, Chūgoku, Hiroshima, Fukuyama | — | AB084097 | — |
|  | NIES614 | Japan, Niigata, Kashiwazaki (37°26'N, 138°35'E) | — | AB084099 | — |
| *Heterocapsa huensis* | n.inf. | western North Pacific, South China Sea, Lang Co Lagoon, off Vietnam: Hue (16°13'N, 108°05'E) | — | AB445394 | — |
| *Heterocapsa illdefina* | NCMA446 | eastern North Pacific, off USA-CA: Santa Barbara Channel (34°15'N, 119°43'W) | — | JQ972687 | — |
|  | NCMA446 | eastern North Pacific, off USA-CA: Santa Barbara Channel (34°15'N, 119°43'W) | — | AB084092 | — |
| *Heterocapsa lanceolata* | TK6-D57 | western North Pacific, off Japan: Tokyo, Ariake | — | AB084096 | — |
|  | HL060720 | n.inf. | — | AB428419 | — |
| *Heterocapsa minima* | CCMI1070 | Ireland: Gearhies, Bantry bay, County Cork | — | KF031311 | KF031312 |
|  | Vil39 | western Mediterranean Sea, off France: Alpes-Maritimes, Nice, Villefranche-sur-Mer (43°41'N, 7°18'E) | JX661030 | JX661019 | — |
|  | LOMME03 | South sea of Korea, Yongho Bay, (35°08′02′′ N, 129°06′53′′ E), Busan | — | MW626888 | — |
| *Heterocapsa niei* | NCMA447 | western North Atlantic, Caribbean Sea, off USA-PR (18°00'N, 66°30'W) | AF274265 | — | — |
|  | UTEX1564 | USA-CA: Salton Sea | EF492499 | — | — |
| *Heterocapsa orientalis* | CTCC 20 | South Africa: False Bay | — | — | AY464690 |
| *Heterocapsa ovata* | NIES472 | Japan, Niigata, Kashiwazaki (37°26'N, 138°35'E) | — | AB084098 | — |
| *Heterocapsa psammophila* | TM43 |  | LC054933 | — | — |
| *Heterocapsa philippinensis* | FIU11 | western North Atlantic, off USA-FL | — | — | EU165273 |
|  | KJ34-3-05 | western North Pacific, South China Sea | — | KT389965 | — |
|  | GBNW14 |  | LC621346 | — | — |
| *Heterocapsa pseudotriquetra* | GeoB 222 | eastern North Atlantic, off Canary Islands (24°25'N, 17°11'W) | — | AY499509 | MF423367 |
|  | NIES473 | eastern Indian Ocean, East China Sea, off Japan: Tsushima | — | AB084100 | — |
|  | UTEX2722 | USA-CA: Salton Sea | KU900227 | FJ823556 | — |
| *Heterocapsa pygmaea* | 103238 | western North Atlantic, off USA-NC (35°45'N, 76°18'W) | — | JQ972681 | — |
|  | NCMA1734 | western North Atlantic, off USA-FL: knight Key (24°42'N, 81°08'W) | — | — | EU165312 |
|  | NCMA2770 | western North Atlantic, Gulf of Mexico, off USA-FL: Marquesas Keys (24°35'N, 82°06'W) | — | JQ972674 | EU165271 |
|  | QUCCCM85 | Persian Gulf, off Qatar: Doha (25°18'N, 51°31'E) | — | KX853191 | KX853175 |
|  | QUCCCM87 | Persian Gulf, off Qatar: Doha (25°18'N, 51°31'E) | — | KX853193 | KX853177 |
|  | QUCCCM88 | Persian Gulf, off Qatar: Doha (25°18'N, 51°31'E) | — | KX853194 | KX853178 |
|  | UTEX1653 |  | EF492494 | AB084093 | — |
|  | **19PV99** | New Caledonia (21°55'36.9"S, 166°05'00.9"E) | **OR194073** | **OR194143** | **OR194153** |
|  | NCMA1322 |  | — | — | FJ939577 |
| *Heterocapsa* cf. *pygmaea* | NCMA448 HtrITSC2\_3 | western North Atlantic, off USA-MA: Falmouth, Perch Pond (41°32'N, 70°37'W) | — | AF352363 | — |
|  | NCMA448 HtrITSC3 | western North Atlantic, off USA-MA: Falmouth, Perch Pond (41°32'N, 70°37'W) | — | AF352364 | — |
|  | NCMA1490 | Mediterranean Sea, Ligurian Sea, off Italy: La Spezia (44°00'N, 9°30'E) | — | AB084094 | — |
|  | RCC1516 | Mediterranean Sea, Tyrrhenian Sea, off Italy: Campania, Naples (41°00'N, 14°15'E) | — | — | KT860562 |
|  | UTEX2421 |  | — | FJ823558 | EU165306 |
|  | AC24-1 | western Mediterranean Sea, off France: Alpes-Maritimes, Nice, Villefranche-sur-Mer, station B (43°41'N, | JX661034 | — | — |
|  | HE04 | western Mediterranean Sea, Mar Menor: off Spain | FJ549370 | — | — |
| *Heterocapsa rotundata* | CCCM680 | n.inf | AF274267 | — | — |
|  | NCMA1542 | western North Atlantic, off USA-MD: Chesapeake Bay (38°36'N, 76°06'W) | DQ388464 | — | — |
|  | SCCAP K-0479 | n.inf | — | — | AF260400 |
|  | SCCAP K-0483 | Denmark: Southern Kattegat, Bouy St (56°02'N, 12°02'E) | — | KF240777 | KF240778 |
| *Heterocapsa* sp. | CS36 | n.inf | — | FJ823557 | — |
|  | CS89 | Tasman Sea, off Australia: Sydney, Port Hacking | — | — | AY916548 |
|  | FIU10 | western North Atlantic, off USA-FL | — | — | EU165272 |
|  | FIU12R | western North Atlantic, off USA-FL | — | — | EU165274 |
|  | FIU31 | western North Atlantic, off USA-FL | — | — | EU165275 |
|  | HCBC88 | Arabian Sea, Gulf of Oman, off Iran | — | — | JN119844 |
|  | USA29-9 | n.inf. | — | AF201747 | — |
|  | HZS-2011 | Arabian Sea, Gulf of Oman, off Iran: Chābahār | — | JN020164 | — |
|  | MBIC10795 | n.inf. | AB183639 | — | — |
|  | NIES3881 | n.inf. | LC189145 | — | — |
|  | NCMA424 | eastern South Pacific, Tasman Sea, off Australia: New South Wales, Cronulla, CSIRO (34°05'S, 51°10'E) | EF492492 | JQ991005 | EF205005 |
|  | n.inf | Arabian Sea, Gulf of Oman, off Iran: Chābahā | — | JN020158 | — |
|  | n.inf | n.inf | AF033865 | — | AF033867 |
| *Heterocapsa* sp. | HG17 | western North Pacific, Ago Bay, off Japan: Mie, Tagetami (34°18N, 136°51'E) | LC054932 | — | — |
|  | H060926-1 | n.inf. | — | AB428420 | — |
|  | H060926-2 | n.inf. | — | AB428421 | — |
| *Heterocapsa steini* | UTKG7 | Baltic Sea, off Germany: Schleswig-Holstein, Kiel (54°19'N, 10°09'E) | MF423350 | MF423355 | MF423356 |
|  | UTKG5 | Baltic Sea, off Germany: Schleswig-Holstein, Kiel (54°19'N, 10°09'E) | MF423349 | — | — |
|  | UTKG4 | Baltic Sea, off Germany: Schleswig-Holstein, Kiel (54°19'N, 10°09'E) | MF423348 | — | — |
|  | UTKG3 | Baltic Sea, off Germany: Schleswig-Holstein, Kiel (54°19'N, 10°09'E) | MF423347 | — | — |
|  | UTKG1 | Baltic Sea, off Germany: Schleswig-Holstein, Kiel (54°19'N, 10°09'E) | MF423346 | — | — |
|  | NIES7 | western North Pacific, off Japan: Osaka Bay | — | AB084101 | — |
|  | NCMA448 | western North Atlantic, off USA-MA: Falmouth, Perch Pond (41°32'N, 70°37'W) | GU594638 | AF527816 | EU165307 |
|  | St1-2 | South Korea: Lake Shihwa (Station 1) | — | HQ902267 | — |
|  | St3-1 | South Korea: Lake Shihwa (Station 3) | — | HQ902268 | — |
|  | GSW206-2 | eastern Indian Ocean, off South Korea: Gosung | AY421787 | — | EF613355 |
| *Azadinium spinosum* | SHETF6 | North Atlantic, Shetland Islands (60°13’N, 01°00’W) | JX559885 | — | — |
| *Azadinium dalianense* | N-38-03 | North Atlantic, Norway (62°20’N, 05°22’E) | LS974153 | — | — |
| *Azadinium trinitatum* | N-39-04 | North Atlantic, Norway (62°28’N, 05°46’E) | LS974170 | — | — |
| *Azadinium polongum* | SHETB2 |  | JX559886 | — | — |
| *Prorocentrum mexicanum* | Brazil1 | the Marine Station of the University of São Paulo in Ubatuba, São Paulo State, Brazil (23°30'S, 45°7'W) | KY426837 | — | — |
| *Prorocentrum micans* | A10 |  | MK405477 | — | — |
| *Prorocentrum rhathymum* | PXHV-1 | n.inf. | JQ638938 | — | — |

— : no sequence available

Obsah obrázku text, snímek obrazovky

Popis byl vytvořen automaticky

Fig. 1S. Flow chart resuming the materials and methods used in this paper.

Obsah obrázku text, diagram, řada/pruh, Vykreslený graf

Popis byl vytvořen automaticky

Fig. 2S. Culture stability, absorbance at 680 nm of *H.* cf. *bohaiensis* cultured in continuous before (*grey part*) and after (*white part*) injection of Ni2+, Fe2+ and Ni2++Fe2+.