CoSMi

Collection of Sea Microorganisms

Istituto Nazionale di Oceanografia e di Geofisica Sperimentale – OGS Trieste

Alfred Beran

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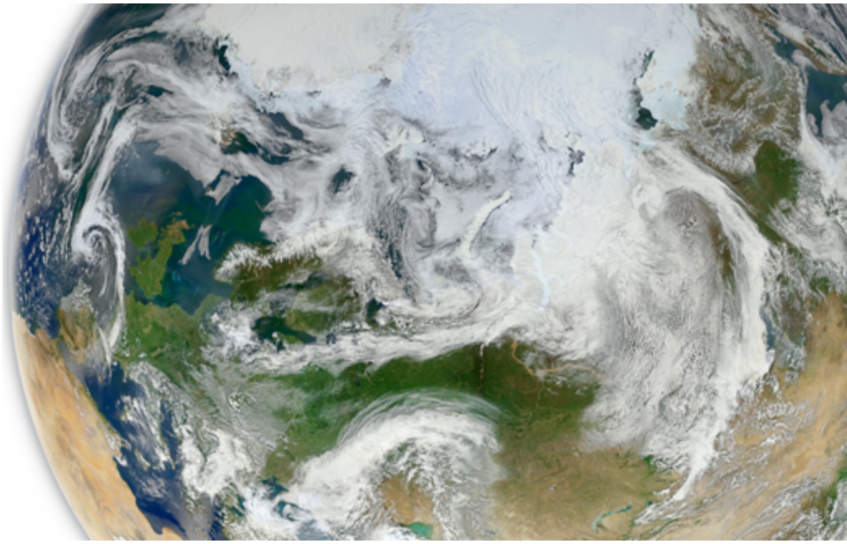
Earth Sustainability Research



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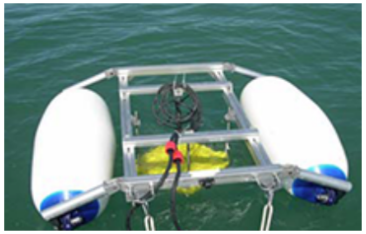

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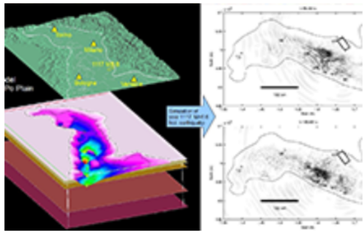

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Infrastructures

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MaB - Marine Biology

The group's activities are directed to study the ecology and diversity of plankton in order to interpret its role in the functioning of marine ecosystems and biogeochemical cycles. Planktonic autotrophic and heterotrophic eukaryotes are studied according to a multidisciplinary approach including ecology, ecotoxicology, physiology, morphology and taxonomy. Particular attention is devoted to the study of small pelagic fish trophic ecology and biodiversity of the nekton and to the development of knowledge on innovative technologies for the exploitation of microalgae as renewable energy source.

Within the group there is the Culture Collection of Sea Microorganisms (CoSMi) populated by species of prokaryotes and eukaryotes, autotrophic and heterotrophic organisms, taxonomically identified on the basis of molecular, biochemical and microscopy techniques.

Coordinator: Marina Cabrini
Members:
Rocco Auriemma
Alfred Beran
Diego Borme
Federica Cerino
Tamara Cibic
Edvino Cociancich
Alessandra De Olazabal
Elena Di Poi
Daniela Fornasaro
Larissa Ferrante
Annalisa Franzo
Alenka Goruppi
Roberto Malfassi
Marina Monti
Federica Nasi
Valentina Tirelli

Strain collection with species of

Diatoms
Cryptophytes
Prasinophytes
Chlorophytes

Dinoflagellates
Prymnesiophytes
Euglenophytes
others

Heliozoans

Ciliates

- **isolation on demand**
- **taxonomic identification**
- **purification of strains**

CoSMi Trieste

search this site

Home

Lingue

Italiano

Navigazione

- Contatto
- Media
- Strains

Accesso utente

Nome utente *

Password *

- Crea nuovo profilo
- Richiedi nuova password

Accedi

Home page

Home

La collezione di microorganismi marini denominata CoSMi (Collection of Sea Microrganisms) raccoglie numerose specie di eucarioti unicellulari, autotrofi ed eterotrofi, riconducibili prevalentemente ai macro gruppi delle diatomee, dei flagellati e dei ciliati.

Caratteristica distintiva è la presenza di numerose specie, isolate prevalentemente dal Golfo di Trieste, di dinoficee potenzialmente tossiche e di diatomee responsabili di fioriture. Sono presenti anche specie utilizzate in acquacoltura e in ecotossicologia.

La missione di CoSMi, collezione avviata nel 1990 presso il Laboratorio di Biologia Marina (ora OGS), è isolare, identificare (a livello tassonomico e genetico) e coltivare microorganismi marini per renderli disponibili alla comunità scientifica e al mondo dell'industria alimentare, farmaceutica, nutraceutica e dell'energia.

CoSMi rappresenta una facility delle infrastrutture ERIC LifeWatch ed EMBRC, è parte integrante del BioMarine Lab, inserito nell'infrastruttura ECCSEL ERIC, e del sistema osservativo Golfo di Trieste. Lo staff di CoSMi è attivo nella divulgazione e nella formazione sui temi della biodiversità per far comprendere il ruolo dei microrganismi nelle dinamiche ambientali marine. CoSMi collabora con istituti italiani e stranieri e supporta la parte sperimentale di tesi di laurea e di dottorato di ricerca.

CoSMi Trieste

search this site

Home

Lingue

Italiano

Navigazione

- Contatto
- Media
- Strains

Accesso utente

Nome utente *

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- Crea nuovo profilo
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Accedi

Strains

Class

Genus/specie

Clone: - Qualsiasi -

Toxic: - Qualsiasi -

Axenic: - Qualsiasi -

Synonymes

Applica

Strain nr.	Class	*Genus/species*	Strain synonyms	Toxic	Clone	Axenic
10001	Helioza	*Heliozoon indet.*		no	no	no
1001	Dinophyceae	*Alexandrium minutum*	AL1T	no	yes	no
1002	Dinophyceae	*Alexandrium minutum*	AL3T	yes	yes	no
1003	Dinophyceae	*Alexandrium minutum*	AL5T	not tested	yes	no
1004	Dinophyceae	*Alexandrium minutum*	AL8T	yes	yes	no
1005	Dinophyceae	*Alexandrium minutum*	AL9T	yes	yes	no
1007	Dinophyceae	*Alexandrium tamutum*	A1T	no	yes	no

Languages

English

Navigation

- Contact
- Media
- Strains

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Username *

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- Request new password

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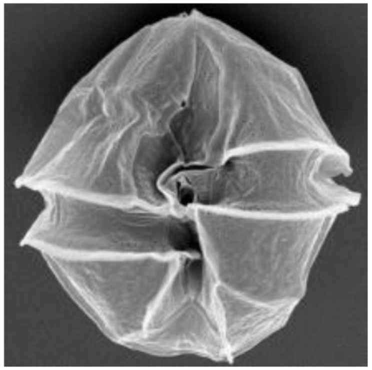
1001



Class: Dinophyceae

Genus/species: *Alexandrium minutum*

Habitat: marine
Country: Italy
Locality: Northern Adriatic, Gulf of Trieste, site A0
Isolated by: Beran
Identified by: Beran
Medium: BT
Temperature: 15°C
Clone: yes
Toxic: no
Axenic: no
Strain synonyms: AL1T
Publications:

Gerdol M, De Moro G, Manfrin C, Milandri A, Riccardi E, Beran A, Venier P, Pallavicini.A (2014) RNA sequencing and de novo assembly of the digestive gland transcriptome in *Mytilus galloprovincialis* fed with toxinogenic and non-toxic strains of *Alexandrium minutum*. BMC Res Notes, 7: 722

John U, Fensome RA, Medlin LK (2003) The Application of a Molecular Clock Based on Molecular Sequences and the Fossil Record to Explain Biogeographic Distributions Within the *Alexandrium tamarense* "Species Complex" (Dinophyceae) Mol Biol Evol, 20 (7): 1015-1027

Tillmann U, John U (2002) Toxic effects of *Alexandrium* spp. on heterotrophic dinoflagellates: an allelochemical defence mechanism independent of PSP-toxin content. Mar Ecol Prog Ser, 230: 47-58

Yang I, John U, Beszteri1 S, Glöckner G, Krock1 B, Goesmann A. Cembella1 AD (2010) Comparative gene expression in toxic versus non-toxic strains of the marine dinoflagellate *Alexandrium minutum*. BMC Genomics, 11: 248pp

Collection date:
12/03/1997

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Home

Languages

English

Navigation

- Contact
- Media
- Strains

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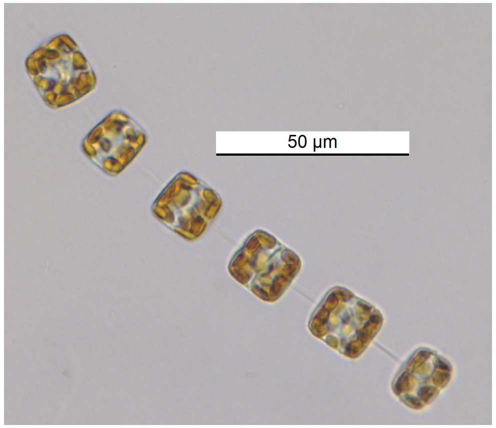
2001

Class: Bacillariophyceae

Genus/species: *Thalassiosira sp.*

Habitat: marine
Country: Italy
Locality: Northern Adriatic, Gulf of Trieste, site C1
Isolated by: Beran
Identified by: Beran
Medium: BS
Temperature: 15°C
Clone: yes
Toxic: no
Axenic: no
Collection date: 02/2012



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J. Phycol. 40, 398–411 (2004)

DOI: 10.1111/j.1529-8817.2004.03060.x

ALEXANDRIUM TAMUTUM SP. NOV. (DINOPHYCEAE): A NEW NONTOXIC SPECIES IN THE GENUS *ALEXANDRIUM*[1]

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Linda K. Medlin
Alfred Wegener Institute for Polar and Marine Research, Am Handelshafen 12, 27570 Bremerhaven, Germany

A new species of the dinofl
drium, *A. tamutum* sp. nov., is
results of morphological and
carried out on strains isolate
Mediterranean Sea: the Gul
Adriatic Sea) and the Gul
Tyrrhenian Sea). Vegetative c
LM and SEM, and resting c
crossing strains of opposite
***drium tamutum* is a small-siz**

parameters described above. The bootstrap analyses were done in 1000 replicates for MP and NJ and with 100 replicates for the ML analysis.

RESULTS

Alexandrium tamutum Montresor, Beran and John sp. nov.

Fig. 1, A–B, Fig. 2, A–C, Fig. 3, A–G, Fig. 4, A–B

Cellulae longae 19–33.7 µm et latae 19–32.6 µm, forma rotunda usque ad ellipticam. Cingulum excavatum est et 1/1 sua latitudine sub laeva parte descendit. Formula laminarum: Po, 4′, 0a, 6″, 6C, 9S, 5‴, 0p, 2⁗. Prima apicalis lamina, rhombi inaequalis forma, cum lamina Po coniuncta est. Parvum ventrale foramen in anteriore dextero margine primae apicalis laminae adest. Sexta praecingularis lamina (6″) tam lata quam longa est. Sulci posterior lamina (Sp), fere rectianguli forma, magis lata quam longa est. Thecae laminae subtiles et leves sunt cum parvis poris. Rotundae cistes sunt (diameter = 26–32 µm) cum a summo videntur et renis forma (altitudo = 16–20 µm) cum iuxta videntur. Cistis paries spissus est et corio mucoso circumdatus; id quod cistis continet granosum est et stigma, colore quasi fusco, adest.

Cells 19–33.7 µm long and 19–32.6 µm wide, round to elliptical in shape. Cingulum excavated with its right end displaced posteriorly one cingular width. Plate pattern: Po, 4′, 0a, 6″, 6C, 9S, 5‴, 0p, 2⁗. The first apical plate is irregularly rhomboidal and contacts Po. A small ventral pore is present on the anterior right margin of the first apical plate. The sixth precingular plate (6″) is as wide as long. The posterior sulcal plate (Sp) is roughly rectangular, wider than longer. Thecal plates are thin and smooth, with small pores. Cysts are circular (26–32 µm diameter) when seen from above and kidney shaped (16–20 µm high) when seen from the side. Cyst wall is thick and surrounded by a mucous layer; cyst content is granular and a brownish accumulation body is present.

Habitat: Marine
Type locality: Gulf of Naples, Tyrrhenian Sea, Mediterranean Sea

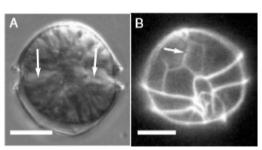

FIG. 1. *Alexandrium tamutum* sp. nov., light micrographs of vegetative cells. (A) Nomarski optics micrograph of a cell in ventral view (strain SZN28) the two ventral arms of the horseshoe-shaped nucleus are shown by an arrow. (B) Calcofluor-stained cell of strain AT5 in ventral view; the ventral pore is shown by an arrow. Scale bars, 10 µm.

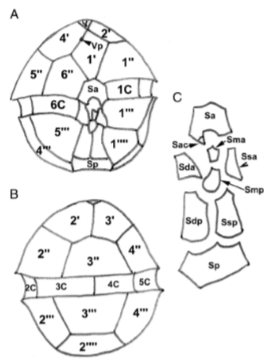

FIG. 2. *Alexandrium tamutum* sp. nov., schematic drawings of thecal plate patterns. (A) Ventral view, (B) dorsal view, (C) sulcal area. For abbreviations, see Figure 3.

Holotype: Figure 3A
Iconotype: Figure 2, A–C
Etymology: The word tamutum is composed by the first part of the word "*tamarense*" and the last part of the word "*minutum*" and indicates the morphological relatedness of *A. tamutum* with both *A. tamarense* and *A. minutum*.

Cell shape is rounded to elliptical (Figs. 1, 2, A and B, and 3, A and B), but larger cells in ventral view can have a slightly pentagonal outline (Fig. 3A). Cell size ranges from 19 to 33.7 µm in length and from 19 to 32.6 µm in width (Table 2); cell depth is almost equal to cell width. The epitheca is dome shaped, almost hemispherical in most cells, but it can be helmet shaped in larger cells because of a change in curvature of the epitheca toward the cingulum. The hypotheca is hemispherical to almost trapezoidal when cells are slightly tilted; the antapical margin of the hypotheca in correspondence to the sulcal area is flat and the left portion of the hypotheca is slightly protruding (Fig. 3D). The cingulum is excavated, descending its own width, and is bordered by very narrow cingular lists (Figs. 1B, 2A, and 3, A, B, D, and E). The sulcus is slightly depressed, with narrow sulcal lists, the left list wider than the right one (Fig. 3, A and D). When cells are slightly tilted, the

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Pelagostrobilidium neptuni (Montagnes and Taylor, 1994) and *Strombidium biarmatum* nov. spec. (Ciliophora, Oligotrichea): phylogenetic position inferred from morphology, ontogenesis, and gene sequence data

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[b]*Department of Zoology, University of Guelph, Canada*
[c]*Laboratorio di Biologia Marina, S. Croce/Trieste, Italy*

Received 19 May 2004; accepted 30 September 2004

Abstract

Morphological data from life, p
genetic data not only to describe the
Petz, Song, and Wilbert, 1995 an
relationships. Additionally, the onto
was improved due to further data

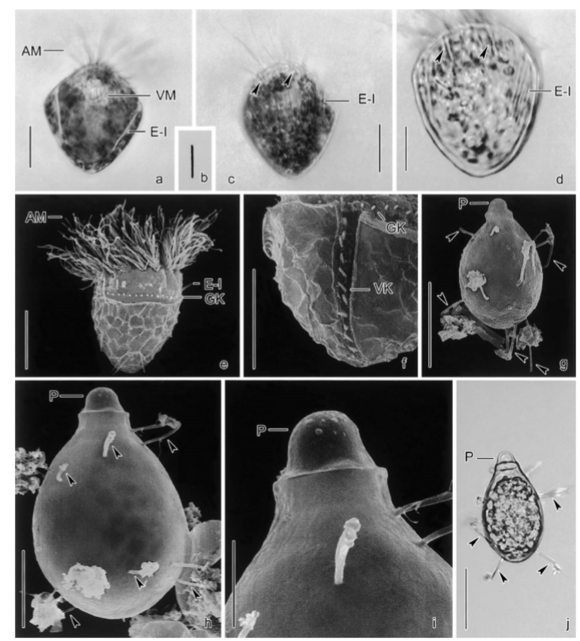
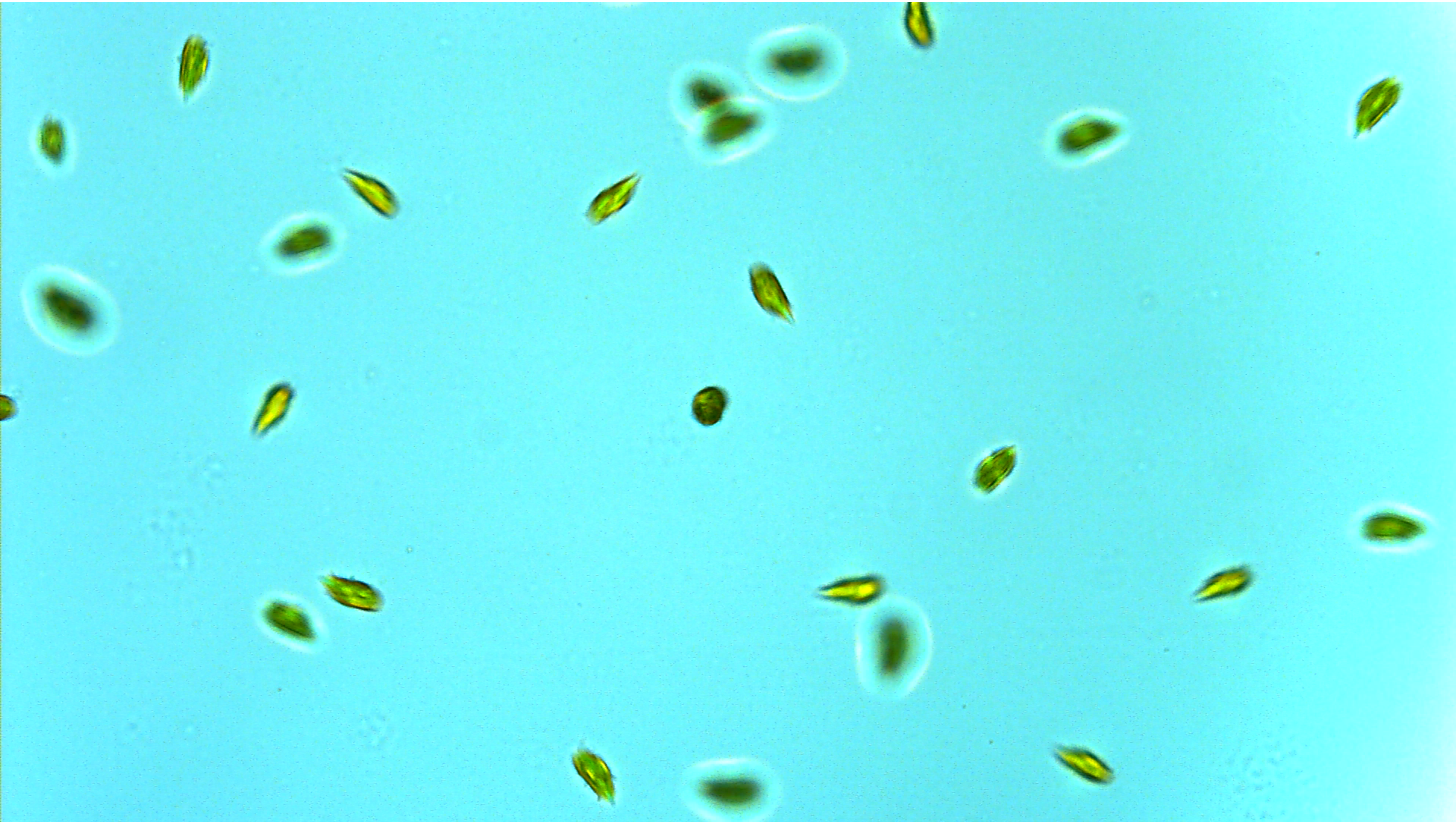
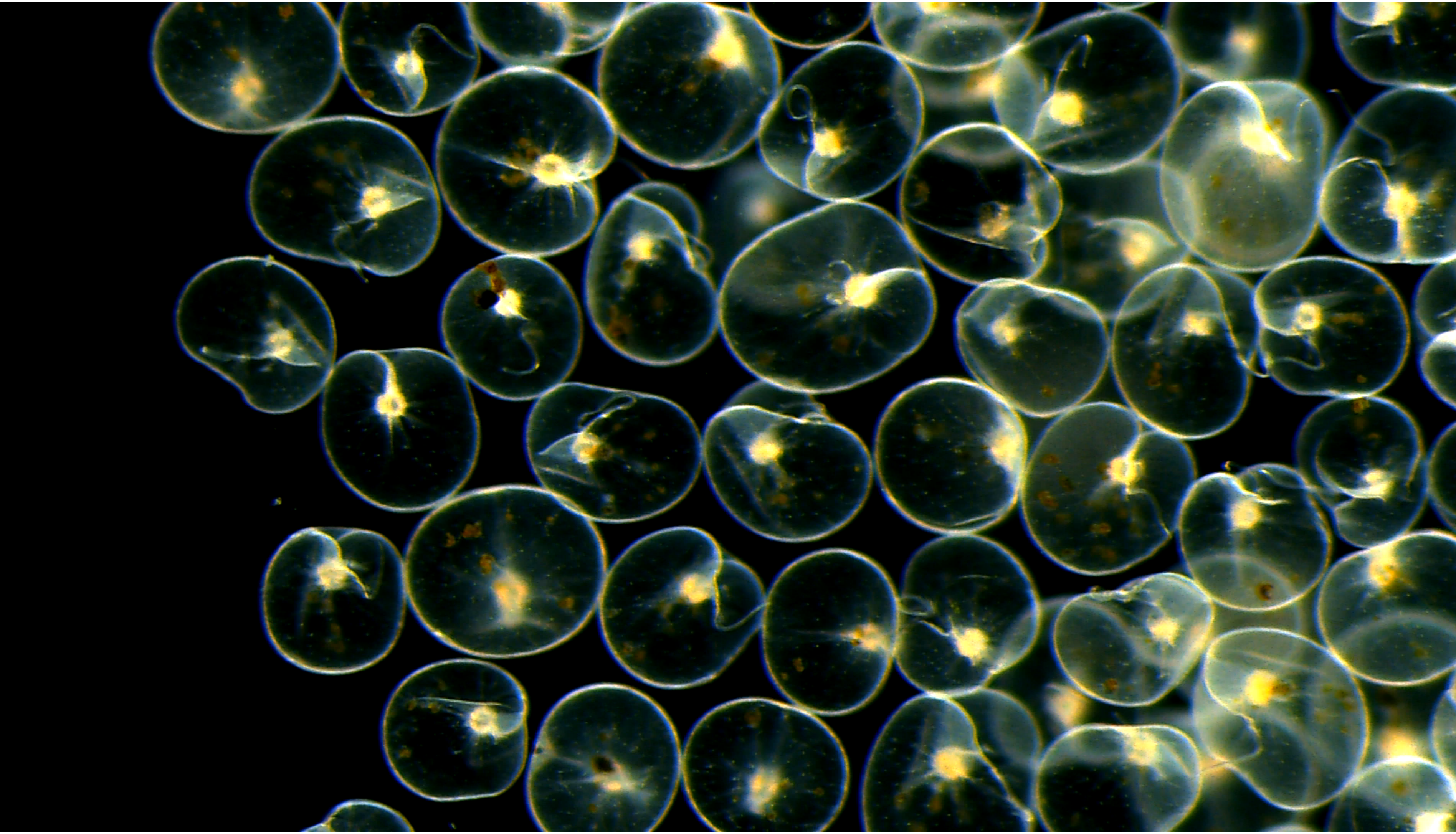


Fig. 7. *Strombidium biarmatum* from life (a–d, j) and in the SEM (e–i). (a, c, d) Lateral views. The type I extrusomes form a stripe near mid-body, while some type II extrusomes (arrowheads) insert at the distal ends of the intermembranellar ridges. (b) Type II extrusome, 6 × 0.5 µm. (e) Lateral view. (f) Posterior ventral half of cell. (g–j) Resting cysts with some strong spines (arrowheads). AM, anterior membranelles; E-I, type I extrusomes; GK, girdle kinety; P, plug; VK, ventral kinety; VM, ventral membranelles. Scale bars 10 µm (a, c, d, e, f, h), 20 µm (g, j), and 5 µm (i).



Eutreptiella sp.

Ceratoperidinium falcatum



Noctiluca scintillans