



Potential of Antarctic habitats for microbial research

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Ulu Peninsula - exceptionally large ice-free area in Antarctica



Johann Gregor Mendel Station

James Ross Island
eastern coast of Antarctic Peninsula



The Czech Station of
Johann Gregor Mendel

Česká stanice
Johanna Gregora Mendela

Ulu Peninsula, James Ross Is.

Largest ice-free area in Antarctic Peninsula region with long-lasting evolution of deglaciated landscape led to the origin of diverse habitats:

- lakes
- streams
- seepages
- wet walls
- permafrost with active layer
- soils, bare ground, rocks
- decaying seal carcasses surroundings
- plants, animals

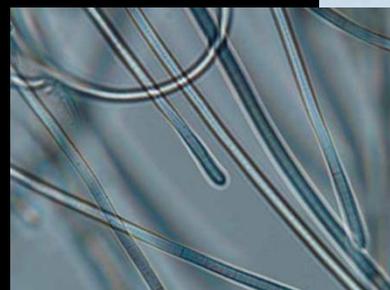


LAKES

Various lake types with different origin, age, physical & chemical parameters, stability and nutrient input

HOT SPOTS of Antarctic biodiversity with high share of endemism and species both from Maritime and Continental Antarctica

- benthic microbial mats with bacterias, cyanobacterias, diatoms, green algae



Short Note

Abundance of aerobic anoxygenic bacteria in freshwater lakes of James Ross Island, Antarctic Peninsula

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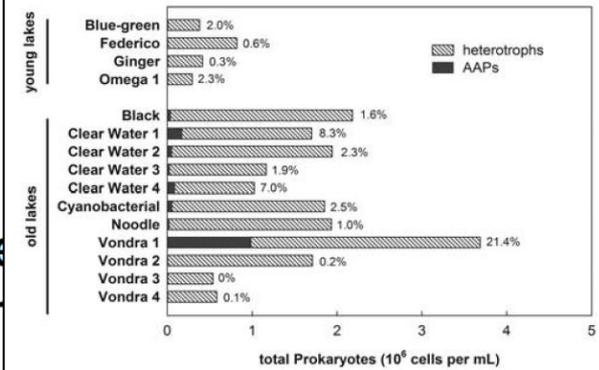


Fig. 1. Abundance of heterotrophic and aerobic anoxygenic phototrophic (AAP) bacteria in freshwater lakes, James Ross Island. Percentage expresses the fraction of the planktonic prokaryotic community.

RESEARCH ARTICLE

Molecular clock evidence for survival of Antarctic cyanobacteria (*Oscillatoriales*, *Phormidium autumnale*) from Paleozoic times

Otakar Strunecký, Josef Elster & Jiří Komárek

Institute of Botany, Academy of Science of the Czech Republic, Třeboň & Faculty of Science, University of South Bohemia, České Budějovice, Czech Republic



MOLECULAR AND MORPHOLOGICAL CRITERIA FOR REVISION OF THE GENUS
MICROCOLEUS (OSCILLATORIALES, CYANOBACTERIA)¹

*Otakar Strunecký*²

Polar Biol (2008) 31:853–865
DOI 10.1007/s00300-008-0424-1

ORIGINAL PAPER

MORPHOTYPES

**Diversity of the cyanobacterial microflora of the northern part
of James Ross Island, NW Weddell Sea, Antarctica**

Jiří Komárek · Josef Elster · Ondřej Komárek

ORIGINAL PAPER

**Heterocytous cyanobacteria of the Ulu Peninsula, James Ross
Island, Antarctica**

GENETICS

Jiří Komárek · Diego Bonaldo Genuário ·
Marli Fatima Fiore · Josef Elster

Calothrix, Dichothrix, Dactylothamnos,
Hassallia, Nodularia, Hydrocoryne, Nostoc

ORIGINAL PAPER

A curious occurrence of *Hazenia broadyi* spec. nova in Antarctica and the review of the genus *Hazenia* (Ulotrichales, Chlorophyceae)

Pavel Škaloud · Linda Nedbalová · Josef Elster ·
Jiří Komárek

Extremophiles
DOI 10.1007/s00792-016-0894-y



ORIGINAL PAPER

Monoraphidium (Chlorophyta, Sphaeropleales,
Selenastraceae)

Identity, ecology and ecophysiology of planktic green algae dominating in ice-covered lakes on James Ross Island (northeastern Antarctic Peninsula)

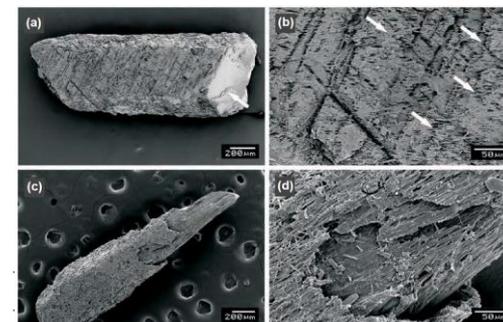
Linda Nedbalová^{1,2} · Martin Mihál¹ · Jana Kvíderová^{2,3} · Lenka Procházková¹ ·
Tomáš Řezanka⁴ · Josef Elster^{2,3}

ECOLOGY, PHYSIOLOGY



Unusual biogenic calcite structures in two shallow James Ross Island, Antarctica

J. Elster^{1,2}, L. Nedbalová^{2,3}, R. Vodrážka⁴, K. Láska⁵, J. Haloda⁴, and J. Komárek^{1,2}





Description of five new species of the diatom genus *Luticola* (Bacillariophyta, Diadesmidaceae) found in lakes of James Ross Island (Maritime Antarctic Region)

KATEŘINA KOPALOVÁ¹, LINDA NEDBALOVÁ^{1,2}, MYRIAM DE HAAN³ & BART VAN DE VIJVER³

Polar Biol (2013) 36:933–948
DOI 10.1007/s00300-013-1317-5

ECOLOGY

ORIGINAL PAPER

Diversity, ecology and biogeography of the freshwater diatom communities from Ulu Peninsula (James Ross Island, NE Antarctic Peninsula)

Kateřina Kopalová · Linda Nedbalová ·
Daniel Nývlt · Josef Elster · Bart Van de Vijver

STREAMS and SEEPAGES

Bohemian Stream



Pseudomonas prosekii sp. nov., a Novel Psychrotrophic Bacterium from Antarctica

Marcel Kosina · Miloš Barták · Ivana Mašlaňová ·
Andrea Vávrová Pascutti · Ondrej Šedo ·
Matej Lexa · Ivo Sedláček

Plant Ecology and Evolution 145 (2): 1–19, 2012
<http://dx.doi.org/10.5091/plecevo.2012.639>



REGULAR PAPER

ECOLOGY

Benthic diatoms (Bacillariophyta) from seepages and streams on James Ross Island (NW Weddell Sea, Antarctica)

Kateřina Kopalová^{1,*}, Jana Veselá², Josef Elster^{2,3},
Linda Nedbalová^{1,3}, Jiří Komárek^{2,3} & Bart Van de Vijver⁴

TAXONOMY

Rufibacter ruber sp. nov., isolated from fragmentary rock

Kamila Kýrová,¹ Ivo Sedláček,¹ Roman Pantůček,² Stanislava Králová,¹ Pavla Holočová,¹ Ivana Mašlaňová,² Eva Staňková,¹ Tanita Kleinhagauer,³ Tereza Gelbíčová,¹ Roman Sobotka,⁴ Pavel Švec¹ and Hans-Jürgen Busse³

INTERNATIONAL
JOURNAL OF SYSTEMATIC
AND EVOLUTIONARY
MICROBIOLOGY

TAXONOMIC DESCRIPTION

Sedláček *et al.*, *Int J Syst Evol Microbiol* 2017;67:1975–1983

DOI 10.1099/ijsem.0.001898



TAXONOMY

Red-pink pigmented *Hymenobacter coccineus* sp. nov., *Hymenobacter lapidarius* sp. nov. and *Hymenobacter glacialis* sp. nov., isolated from rocks in Antarctica

Ivo Sedláček,^{1,*} Stanislava Králová,¹ Kamila Kýrová,¹ Ivana Mašlaňová,² Hans-Jürgen Busse,³ Eva Staňková,¹ Veronika Vrbovská,^{1,2} Miroslav Němec,⁴ Miloš Barták,⁵ Pavla Holočová,¹ Pavel Švec¹ and Roman Pantůček²

Pedobacter jamesrossensis sp. nov., *Pedobacter lithocola* sp. nov., *Pedobacter mendelii* sp. nov. and *Pedobacter petrophilus* sp. nov., isolated from the Antarctic environment

Pavel Švec,^{1,*} Stanislava Králová,¹ Hans-Jürgen Busse,² Tanita Kleinhagauer,² Roman Pantůček,³ Ivana Mašlaňová,³ Margo Cnockaert,⁴ Peter Vandamme,⁴ Eva Staňková,¹ Tereza Gelbíčová,¹ Pavla Holochová,¹ Miloš Barták,⁵ Kamila Kýrová¹ and Ivo Sedláček¹

Curr Microbiol (2016) 73:84–90
DOI 10.1007/s00284-016-1029-5



Description of *Pseudomonas gregormendelii* sp. nov., a Novel Psychrotrophic Bacterium from James Ross Island, Antarctica

Marcel Kosina¹ · Pavel Švec¹ · Jitka Černošávková¹ · Miloš Barták¹ ·
Kateřina Snopková² · Paul De Vos³ · Ivo Sedláček¹

DECAYING SEAL CARCASSES

Screening for *Mycobacterium pinnipedii*

Diverse diatom, algal, cyanobacterial and bacterial communities



Antarctic Science 28(1), 3–16 (2016) © Antarctic Science Ltd 2015

doi:10.1017/S095410201500036X

Death age, seasonality, taphonomy and colonization of seal carcasses from Ulu Peninsula, James Ross Island, Antarctic Peninsula

DANIEL NÝVLT^{1,2,3}, MIRIAM NÝVLTOVÁ FIŠÁKOVÁ⁴, MILOŠ BARTÁK¹, ZDENĚK STACHOŇ³,
VÁCLAV PAVEL⁵, BEDŘICH MLČOCH⁶ and KAMIL LÁSKA³

Plant Ecology and Evolution 147 (1): 67–84, 2014
<http://dx.doi.org/10.5091/plecevo.2014.896>



REGULAR PAPER

Moss-inhabiting diatoms from two contrasting Maritime Antarctic islands

Kateřina Kopalová^{1,*}, Ryszard Ochyra², Linda Nedbalová¹ & Bart Van de Vijver^{3,4}

Czech J. Anim. Sci., 61, 2016 (3): 127–132

Original Paper

doi: 10.17221/8785-CJAS

Composition of cultivable enteric bacteria from the intestine of Antarctic fish (family Nototheniidae)

I. SEDLÁČEK, E. STAŇKOVÁ, P. ŠVEC



**Imported anthropogenic bacteria may survive
the Antarctic winter and introduce new genes
into local bacterial communities**

Kristian BRAT^{1*}, Ivo SEDLACEK², Alena SEVCIKOVA³, Zdenek MERTA¹,
Kamil LASKA⁴ and Pavel SEVCIK^{5,6}

Thank you for your attention

For any questions, comments, or interest in collaboration please do not hesitate to contact me!



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