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THE NEW SPECIES OF *DACTYLOBIOTUS* (PARACHELA, EUTRADIGRADA) FROM FROM KING GEORGE ISLAND, ANTARCTICA

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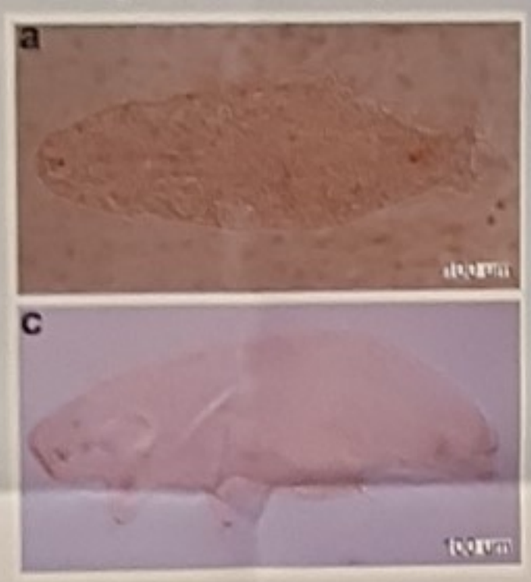
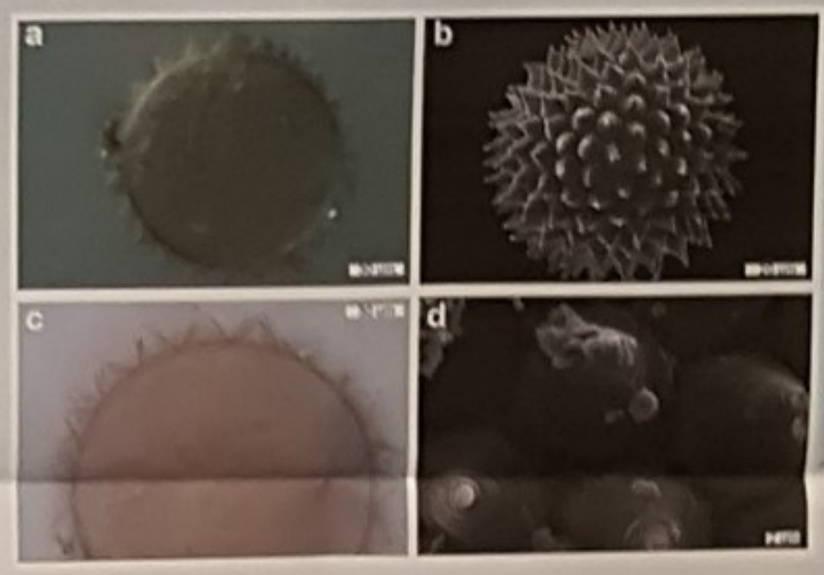
Limno-terrestrial tardigrades form one of the most dominant groups in the scanty terrestrial freshwater ecosystem of Antarctica. However, due to their limited key morphological characters and restricted access to the habitats, taxonomic study on Antarctic tardigrades largely remains to be challenged. KOPRI ecology team collected several species of tardigrades near the King Sejong Station, King George Island, Antarctica during 2014-2015 season.
Among the collected tardigrades, one group shows a buccal-pharyngeal apparatus with ten peribuccal lamellae, and the cuticle structure which joins two claws in each limb. These characters warrant a generic assignment *Dactylobiotus*. This species is quite large in size (600-700 μm) with prominent eyespots and smooth cuticle. The egg has circular or slightly hexagonal cone-type processes with a tip. Compared to *D. ambiguus* and *D. caldarellai* which have a rather similar morphology, this species shows claws with longer primary branch at all limbs. The 18S, 28S rDNA and cytochrome c oxidase subunit 1 (CO1) sequences do not correspond to any previously-reported sequence, although only limited molecular data of tardigrades have been reported so far. Based on the *pt*-ratio of the buccal-pharyngeal apparatus and claws, the morphology of eggs, and the DNA sequences of three partial genes, this species is considered as a new species of *Dactylobiotus*.

Specimen locality

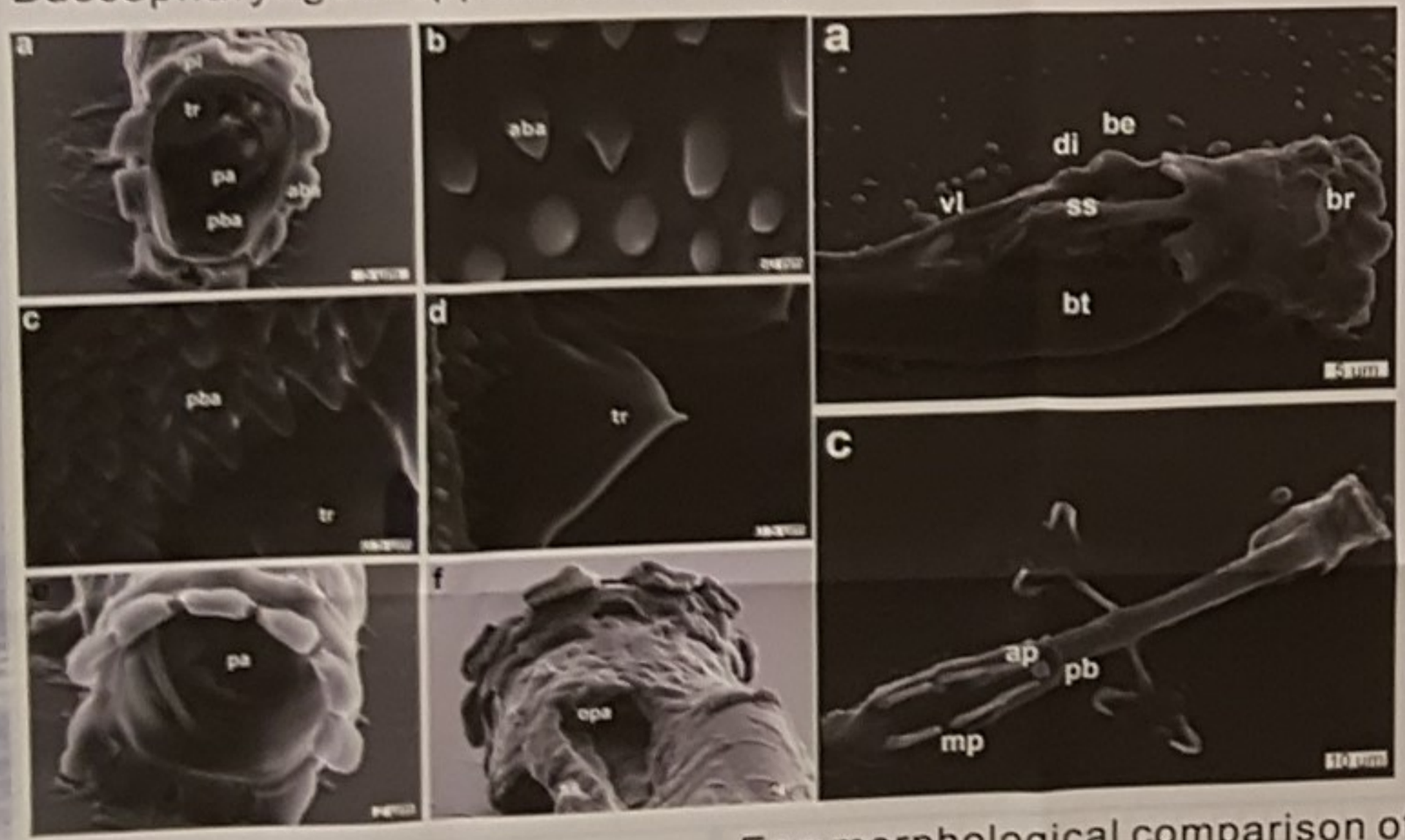
Dactylobiotus sp.



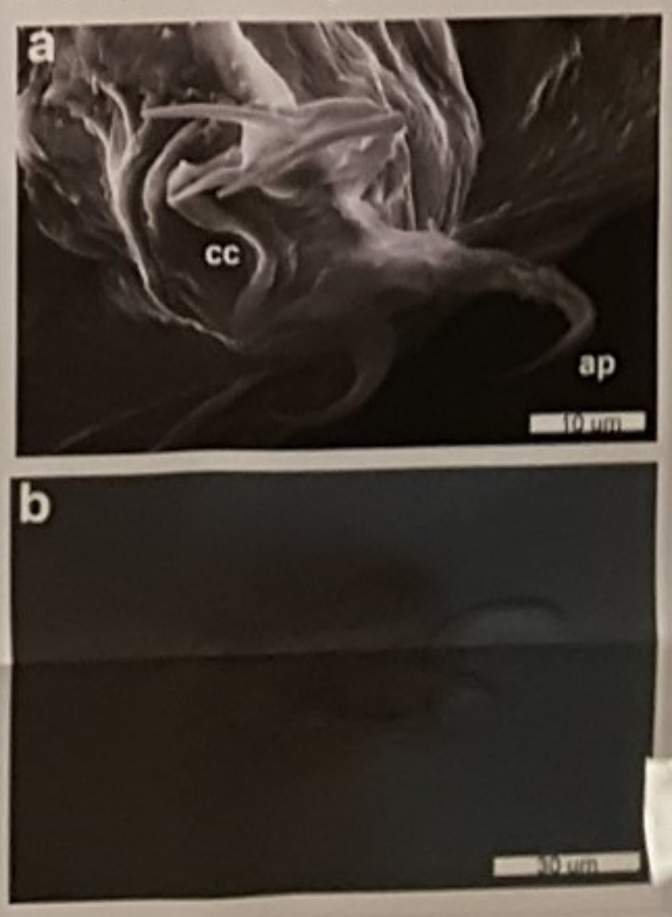
Eggs of *Dactylobiotus* sp.



Buccopharyngeal apparatus of *Dactylobiotus* sp.



Claws of *Dactylobiotus* sp.



Morphological comparison

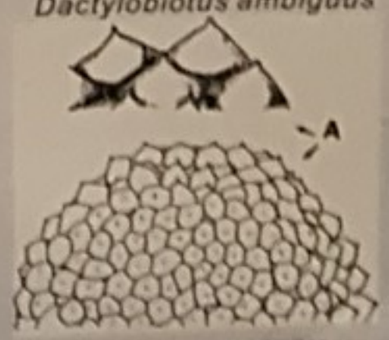
	pt ratio of primary branch of claw IV	*pt* ratio of primary branch of claw II
D. ambiguus	33.99	44.50
D. caldarellai	44.7	34.4
D. sp.	69.37	46.45

Egg morphological comparison of *D.* sp. to *D. ambiguus*

Dactylobiotus sp.

D. ambiguus from King George Island

Dactylobiotus ambiguus



Previously reported eggs of *D. ambiguus* from King George Island (Dastych 1984, Gibson et al. 2007) shows more similar morphology to the eggs of *D.* sp. than those of *D. ambiguus*. It may be the eggs of *D.* sp. rather than those of *D. ambiguus*.

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Tardigrades from King George Island, Antarctica: Taxonomy of *Dactylobiotus* sp

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Phylum Tardigrada is a minute, hydrophilous animal group with a five segmented body which consists of a head and four trunk segments. This phylum is famous for the ability to survive the severe conditions such as cold, dry, or high radiation environments. The limno-terrestrial tardigrades are one of the dominant animal groups in the terrestrial ecosystem of Antarctica. However, due to their limited morphological characteristics and restricted access to the habitats, taxonomic study on Antarctic tardigrades is difficult to carry out. KOPRI ecology team collected several species of tardigrades from King George Island, Antarctica during 2014-2015 season expedition. Among the collected tardigrades, one species shows a bucco-pharyngeal apparatus with 10 peribuccal papillae reminiscent of *Macrobiotus*-type and the cuticular connection between claws, which are characteristics of the genus *Dactylobiotus*. This species is large in size (600-700 µm) with smooth cuticle and no conical papillae between 3rd and 4th limbs. Key morphological characters of bucco-pharyngeal apparatus and claws are being measured, and *pt* ratio (the ratio of the length of a given structure to the length of the buccal tube) are compared to that of other *Dactylobiotus* species to see whether the species is a previously reported *Dactylobiotus* species documented in other regions around the world, or a new species.