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Cold adapted fungi isolated from sediment in the East Siberian Sea

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Purpose: Taxonomical distribution, life-cycles and biological function of fungi inhabiting in the Arctic Sea have not been described enough. To investigate the physiological characteristics of fungi from the Arctic Sea, we attempted to cultivate fungi from marine sediments from East Siberian Sea during a research cruise by R/V Araon (Cruise No. ARA09C).

Methods: Surface sediments (approx. 1 g) were spread on YM agar and incubated at 4°C for 3 months. Yeast-like colonies observed as a single colony were picked to obtain pure cultures. Twenty nine strains were isolated, and a part of strains were taxonomically characterized by sequencing of D1/D2 regions in ribosomal RNA large subunit.

Results: All strains grew well below 15°C, and recognized as psychrophiles. Interestingly, AST36-1 and AST31-1, which were identified as *Glaciozyma* sp. and unknown species in *Camptobacidae*, *Kriageriales*, respectively, showed scaly cells, less pseudohyphae, and bisexual budding. Arctic yeast *Glaciozyma* sp. (formerly known as *Leucosporidium* sp.) was reported to have a complex ice binding site which may allow interactions with multiple faces of the ice crystal (Lee et al. 2012). The different species in the genus *Glaciozyma* had been isolated from Italian glaciers (Turchetti et al. 2011).

Conclusions: The results implied that the *Glaciozyma* related species would be wide spread in cold region from glaciers to sediment at the Arctic Sea.