The relationship between Microenvironmental Features and Distribution of Lichen Cladonia in Antarctica

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The Barton Peninsula of King George Island, Antarctica, is a small area but their topographical features including a variety of slopes, aspect, and elevation result in a various microclimate and diverse vegetation such as lichens, mosses, liverworts, and vascular plants. Among terrestrial vegetation, lichens are sensitively affected nearby environmental condition because the whole body of a lichen is directly exposed to external environments. However, the environmental factors that largely determine the distribution of lichen in Antarctica have been poorly understood across the Barton peninsula. To investigate the distribution pattern of lichens *Cladonia squamosa* and *C.gracilis* complex that are widely distributed in Barton Peninsula and the factor that influences their distribution, a total of 177 *Cladonia* samples were collected in 11 different sites and frequency of distribution of vegetation, microclimatic and topographic data were obtained at each site. There were several sites, which were observed to inhabit only one species of *Cladonia*. Correlation analyses between the distribution of *Cladonia* species and environmental data revealed that distribution of moss *Chorisodintium aciphyllum*, aspect, temperature, and moisture were closely related to a distribution of *Cladonia* species. These results imply that various geographical features and microclimate conditions can affect the distribution of lichen and environmental shift may cause a change in a distribution of vegetation.

The Barton Peninsular of King George Island is a small area but their topographical features including a variety of slopes, aspect, and elevation result in a various microclimate and diverse vegetation composition such as lichens, mosses, liverworts, and vascular plants. Among diverse terrestrial vegetation, lichens are significantly affected nearby environmental condition because whole body of lichen is directly exposed to external environments. However, the factors that largely determines the distribution of lichen in Antarctica have been poorly understood across the Barton peninsula. To investigate the distribution pattern of lichens Cladonia squamosa and C.gracilis complex that are widely distributed in Barton Peninsula and the factor that influences their distribution, a total of 177 Cladonia samples were collected in 11 different sites and frequency of distribution of vegetation, microclimatic and topographic data were obtained at each site. Out of 11 sites, only C.squamosa was observed at three sites and only C.gracilis was observed at four sites. In contrast, both species were observed at other sites. The correlation between the distribution of C.squamosa and C.gracilis complex and environmental data revealed that distribution of Sanionia uncinata and Chorisodontium aciphyllum, direction, temperature and moisture were closely related with distribution of Cladonia species. These results imply that various geographical features and microclimate conditions can affect distribution of lichen and environmental shift could cause change in diversity and distribution of vegetation.

8064 Prevalence of Foodborne Pathogens from Livestock and Broiler Farm Environments in South Korea Hye Ri Kim, Robin B. Guevarra, Jun Hyung Lee, Sun Hee Lee, Jae Hyoung Cho, and Hyeun Bum Kim* Department of Animal Resources Science, Dankook University

B070

Relationship between Microenvironmental Features and Distribution of Lichen Cladonia in Antarctica Hyun-Ju Noh^{1,2}, Kyuin Hwang¹, Young-Jun Yoon¹, Jang-Cheon Cho², and Soon Gyu Hong¹* ¹Division of Polar Life Sciences, Korea Polar Research Institute, ²Department of Biological Sciences, Inha University

Poster

B065 Microbial Communities Associated with Mercury Methylation in Vegetated Ganghwa Intertidal Sediments,

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B066

Prevalence and Diversity of Carbapenem-hydrolyzing β-Lactamases in Environmental Bacteria Ji-Hye Bu, Do-Hoon Lee, and Chang-Jun Cha* Department of Systems Biotechnology, Chung-Ang University



Identification of OXA Gene Activity by Metagenome **Expression Cloning from Marine Microorganisms** Sung Jae Ahn¹, Taeyune Kim¹, Mina Rho^{2,3}, and Woo Jun Sul¹* ¹Department of Systems Biotechnology, Chung-Ang University, ²Department of Computer Science and Engineering, Hanyang University, ³Department of Biomedical Informatics, Hanyang University



Identification of Staphylococcus Originated from Human Skin by Using Raman Microspectroscopy Jubin Kim, Jin Ju Kim, Hye-Jin Kim, and Woo Jun Sul* Department of Systems Biotechnology, Chung-Ang University





Effects of Invasive Spartina anglica on Microbial **Communities in Intertidal Sediments of Ganghwa Island,** Yellow Sea

Hyeonji Lee, Sung-Uk An, Jisu Park, Hyeyoun Cho, Hyun-Soo Baek, and Jung-Ho Hyun*

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The Time-series Metagenome Reveals Dynamic Shifts of Microbial Community from the East Sea, Korea Taeyune Kim, Hoon Je Seong, and Woo Jun Sul* Chung-Ang University

Differently Developed Infancy Gut Microbiome According to Severity of Atopic Dermatitis Min-Jung Lee¹, Yun Kyung Lee², Dong-Woo Lee³, Myung Hee Nam⁴, Soo-Jong Hong⁵, and Bong-Soo Kim¹*

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Fungal Communities Associated with Deciduous Broadleaf Forests Soil (Fraxinus rhynchophylla and Carpinus cordata) in Mt. Jeombong Ki Hyeong Park¹, Seung-Yoon Oh², and Young Woon Lim^{1*}



Cloning and Identification of Lipolytic Enzyme from Marine Metagenomic Library and Charaterization of a Novel Lipase

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B075 Spindle-shaped Viruses Infect a Marine Ammonia-oxidizing

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