

Moult-fast and faecal bacterial changes in Antarctic seabirds

Won Young Lee¹, Hyun-Joon Cho¹, Jin-Woo Jung¹, Jeong-Hoon Kim¹

¹*Division of Polar Life Sciences, Korea Polar Research Institute, Incheon, Republic of Korea*

Many seabirds abstain from foraging in the water during the moult period. Antarctic penguins have an intense moult for 2-3 weeks which confined them to stay on land consuming stored lipids and proteins. Despite the ecological importance for survival during the moult, it is still unclear how the penguins tolerate the fast period. In this study, we investigated the faecal microbiota of two Antarctic seabirds, Gentoo (*Pygoscelis papua*) and Chinstrap penguins (*Pygoscelis antarctica*). By comparing their microbial composition between the foraging and the moult stage, we found that the moult-fast facilitated changes of the faecal microbial structure and diversity. In our results, significant increases of Proteobacteria and Firmicutes were observed during moult while there was no difference in diversity index. After the moult, the microbial compositions among individuals became more similar each other. The results suggest that the moult-fast induces gastrointestinal microbiota and this may possibly contribute to understand how the birds adapted for long periods of fasting.