

ウガンダの氷河上の微生物と蘚類原糸体の集合体

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Microbial community and moss gemmae aggregation on disappearing tropical glacier in Uganda

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Tropical region is still missing area of glacier biology, though most studies on glacier ever had been reported frequently from mid latitude to bipolar region. In tropical regions glacier retreat is more significant, especially glaciers in Mt. Ruwenzori where located between Uganda and Congo was expected to disappear within a decade.

Climate in Mt. Ruwenzori is very different from mid Latitude Mountains, most major difference are no seasonal cycle of air temperature and no long term frozen period. These features may support the presence of unique biological aggregation, which formed by gemmae of cosmopolitan moss (*Ceratodon purpureus*). Glacial moss gemmae aggregation (GMGA) is 18.7mm length, 12.7mm width and 8.36mm depth on average (n=96) and concentrated around glacier terminus and inside temperature of GMGA rose up around 10 degree despite located on the ice. On the bared bed rock which recently glacier ice was retreat, dried GMGA which fell from glacier were frequently observed and some of these become soil-like structure. However, no studies for microbiology of GMGA were conducted.

In order to investigate microbial community of GMGA and ecological relation ship between GMGA and glacier surface and soil on bared bedrock, we analyzed diversity and community strstructure of bacterial 16S rRNA. Cluster analysis of 81073 sequences belong to abundant OTU from 5 sites shows difference of bacterial community structure between GMGA and other glacier surface is similar and 62% of total 590 OTU from same glacier (3 sites) is mutual in all. Therefore, small environmental change such as invasion of mosses or mild temperature rise would not largely affect bacterial community. Otherwise, community structure of soil on bared bedrock is completely different from glacier samples including GMGA and species diversity is lower than glacier. This may indicate bacterial community of GMGA is unstable for large environmental change such as much temperature rise or dryness. These evidences imply that glacial ecosystem will disappear when glacier ice will completely melt.