

海洋酸性化が翼足類 *Limacina helicina* の生理生態に及ぼす影響の評価

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Impacts of ocean acidification on the ecophysiology of pteropod *Limacina helicina*

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Southern oceans are predicted to be particularly vulnerable to the ocean acidification because cold water has high solubility to CO₂ and regional upwelling of deep-seawater supply high CO₂ concentration seawater at ocean surface (Sabine et al. 2004, Orr et al. 2005). Additionally, global warming is causing sea water freshening which cause decrease in CaCO₃ saturation state. Hence marine calcifiers in the Southern ocean are expected be one of the first organisms to be affected by the ocean acidification. Among them, the thecosome pteropods are principally highlighted as they possess very fragile aragonite shells and are ecologically key species in Southern ocean food web.

In the present study we focused on pteropod *Limacina helicina* (Fig. 1), and we aimed to evaluate the effect of ocean acidification (control: 400, 650 and 850 μ atm) and low salinity (control: 33 and 31) on their calcification and respiration rate. Additionally, the impact of ocean acidification on the early development life stages were investigated by rearing *L. helicina* eggs and embryos under high CO₂ and low salinity seawater.

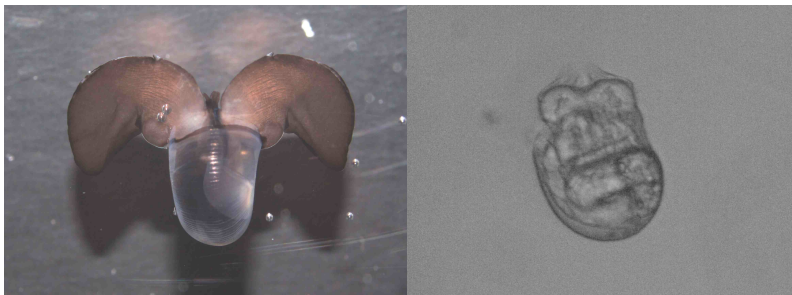


Figure 1. Pteropod *Limacina helicina* adult and embryo.

References

Sabine CL et al. (2004) The oceanic sink for anthropogenic CO₂. Science 305, 367-371.

Orr JC et al. (2005) Anthropogenic ocean acidification over the twenty-first century and its impact on calcifying organisms. Nature 437, 681-686.