

## 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

栗原晴子<sup>1</sup>、秋葉文弘<sup>2</sup>、佐々木洋<sup>2</sup>

<sup>1</sup> 琉球大学、<sup>2</sup> 石巻専修大学

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

Haruko Kurihara<sup>1</sup>, Fumihiro Akiha<sup>2</sup> and Hiroshi Sasaki<sup>2</sup>

<sup>1</sup>University of the Ryukyus, <sup>2</sup>Senshu U. Ishinomaki

Southern oceans are predicted to be particularly vulnerable to the ocean acidification because cold water has high solubility to CO<sub>2</sub> and regional upwelling of deep-seawater supply high CO<sub>2</sub> 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 CaCO<sub>3</sub> 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  $\mu$ 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 CO<sub>2</sub> and low salinity seawater.

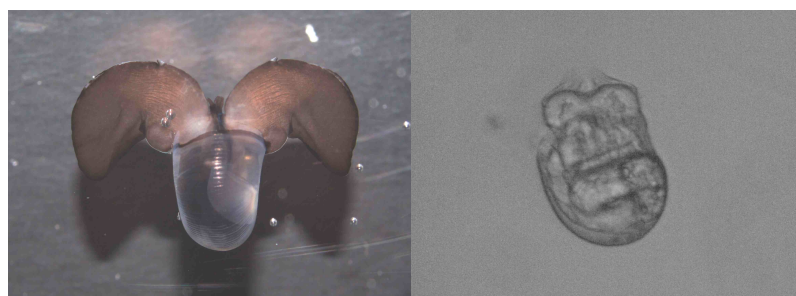


Figure 1. Pteropod *Limacina helicina* adult and embryo.

#### References

Sabine CL et al. (2004) The oceanic sink for anthropogenic CO<sub>2</sub>. *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.