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砂澤洋平・鈴木秀和・能登谷正浩・藤田大介：富山湾氷見市沿岸のテングサ場における付着珪藻 *Arachnoidiscus ornatus* Ehrenb. の発生状況

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#### Abstract

An attached diatom, *Arachnoidiscus ornatus* Ehrenb., has been known as a fouling organism on the commercially important agarophyte, *Gelidium elegans* Kütz. in Japan. When *Gelidium* thalli heavily covered with *A. ornatus* were dried before shipment, they turned grayish green from red (original thallus color) because of the discoloration of *A. ornatus*, resulting in the reduction of their commercial value. In this study, the occurrence of *A. ornatus* on *G. elegans* was monitored seasonally and quantitatively by collecting *G. elegans* at three sites along the coast of Himi City, Toyama Bay from 2004 to 2006. Coverage of *A. ornatus* on *G. elegans* was measured using the scanned photographs (600 dpi) of *G. elegans* thalli. In 2004 and 2005, higher coverage appeared from summer to autumn (up to 20 to 40%), namely the harvest season of *G. elegans*, while coverage was lower in the winter and spring. In 2006, as our previous studies showed that common gastropods in the *Gelidium* beds never affected the abundance of *A. ornatus*, effects of water temperature and nutrients were examined by culturing the fouled *Gelidium* branches in surface seawater, deep (i.e., nutrient-rich) seawater (DSW) and three levels (25, 50 and 75% DSW) of mixed seawaters at 10, 20 and 30°C. The number of attached *A. ornatus* increased in 50 to 100% DSW at 10 and in 25 to 100% at 20°C but decreased in every culture medium at 30°C. These results show that the abundance of *A. ornatus* is highly dependent on nutrient levels and the temperature of the Himi coastal waters (ca. 10-27°C).

Key index words: *Arachnoidiscus ornatus*, attached diatom, fouling, *Gelidium elegans*, nutrients, phenology