

國立臺灣海洋大學

海洋環境與生態研究所 專題討論

題目：太平洋中纖毛蟲的分佈趨勢

作者：Fernando Gómez

出處：Acta Oecologica (2007) vol. 32, p.188-202

報告人：李俊廷 預研生

指導教授：蔡昇芳老師

報告日期：5/12/2021

Abstract

The distribution of planktonic ciliates, aloricate (naked) and loricate (tintinnid) was investigated in the open waters of the Oyashio and Kuroshio Currents, Philippine, Sulu, Celebes and South China Seas, and the western and central equatorial Pacific. The abundance of nauplii and post-naupliar copepods as potential predators was estimated. In average, the tintinnids represented 10–20% of the abundance of aloricate ciliates (50–200 cells L⁻¹). One hundred and two species of 37 genera of tintinnids were recorded. As a general trend, the highest species richness was found in moderate oligotrophic waters. Photographic records of some taxa of interest and unidentified specimens were reported. In the subarctic waters of the Oyashio Current, a few tintinnid species showed high abundance fluctuations that may be controlled by the copepods. During the summer the species of *Parafavella* with longer loricae predominated in parallel to the increase of the copepodite abundance. In warm open waters, the success of a ciliate species could depend on its anti-grazing strategy. *Eutintinnus apertus* attached to a spine-bearing diatom was the most ubiquitous species. Tintinnids may be subjected to lower predation pressure than aloricate ciliates. The increase of the lorica length or the association with diatoms may be an anti-grazing strategy, which determines the success of one tintinnid taxon versus other congeneric species. Although the aloricate ciliates would be less affected than tintinnids by the reduction of food availability under oligotrophic conditions, the ciliate populations as a general trend seem to be controlled by the predators (top-down) rather than by the availability of food resources (bottom-up).

中文摘要

本研究探討在親潮、黑潮、菲律賓海、蘇祿海、西理伯斯海、南中國海以及太平洋赤道地區等開闊海域中浮游性纖毛蟲 aloricate (無殼類纖毛蟲) 和 loricate (有殼類纖毛蟲) 的分佈，並估算其潛在天敵橈足類無節幼體及後無節幼體的現

存量。平均來看，有殼類纖毛蟲的數量為無殼類纖毛蟲的 10-20% (50-200 cells L⁻¹)。研究共記錄了 37 個屬 102 種的有殼類纖毛蟲，並發現中度貧營養鹽水域有最高的物種豐富度。在副北極水域親潮流中，少量有殼類纖毛蟲物種表現出高豐度波動的情形，此結果可能是受橈足類所控制。研究發現夏季期間具有長殼的 *Parafavella* 與橈足類幼體均為主要的優勢群體。纖毛蟲種類成功存活於溫暖開闊海域，主要取決於其反攝食策略。由於附在具有尖棘矽藻上的 *Eutintinnus apertus* 是最普遍的物種，因此有殼類纖毛蟲可能較無殼類纖毛蟲遭受更低的被捕食壓力。有殼類纖毛蟲殼體長度的增加或與矽藻的結合可能是一種反攝食策略，這決定了同屬不同種有殼類纖毛蟲彼此的成功與否。儘管在貧營養鹽條件下食物供應量的減少會使無殼類纖毛蟲的影響不及於有殼類纖毛蟲，但是纖毛蟲族群表現似乎主要是受攝食者的控制（由上而下），而不是受食物資源的獲得所控制（由下而上）。

參考資料

Gómez, F. 2007. Trends on the distribution of ciliates in the open Pacific Ocean. *Acta Oecologica*. 32:188-202. Doi: <https://doi.org/10.1016/j.actao.2007.04.002>