Phytotaxa 234 (3): 227–236
www.mapress.com/phytotaxa/

Article

ISSN 1179-3155 (print edition)
PHYTOTAXA
ISSN 1179-3163 (online edition)

http://dx.doi.org/10.11646/phytotaxa.234.3.3

Tursiocola denysii sp. nov. (Bacillariophyta) from the neck skin of Loggerhead sea turtles (*Caretta caretta*)

THOMAS A. FRANKOVICH[1,*], MICHAEL J. SULLIVAN[2] & NICOLE I. STACY[3]
[1]*Florida International University, Florida Bay Interagency Science Center, 98630 Overseas Highway, Key Largo, FL 33037, USA*
[2]*130 Martinique Drive, Madison, MS 39110, USA, E-mail: sullivanmi@gosaints.org*
[3]*University of Florida, College of Veterinary Medicine, Large Animal Clinical Sciences, Gainesville, FL 32641, USA, E-mail: stacyn@ufl.edu*
** Corresponding author (E-mail: frankovich@virginia.edu)*

Abstract

Tursiocola denysii sp. nov. is described from the dorsal neck skin of loggerhead sea turtles (*Caretta caretta*), bringing the total number of known species in the genus *Tursiocola* to eight. A gradient of striae density on the valve face, the low length: width ratio of the valves, radiate striae at mid-valve, and a second partial row of pores on the valvocopulae are characteristics that expand the range of morphological diversity within the genus. The different morphology of the pars interior and the pars exterior of the valvocopula is described for the first time in the genus. *T. denysii* accounted for up to ca. 40% of all diatom valves on the skin of loggerhead turtles. This is the first report of a new epizoic diatom species from the skin of loggerhead sea turtles.

Keywords: *Tursiocola*, biogeographical distribution, epidermal diatoms, Florida, new species, morphology, SEM

Introduction

Aquatic animals provide suitable habitats on their skin, shells, and feathers for the development of diatom communities (see Tiffany 2011 for review). The existence of epizoic diatom floras dominated by a few unique taxa (Hart 1935, Nemoto 1956, Holmes 1985, Holmes *et al*. 1989, 1993a, b, Denys 1997, Majewska *et al*. 2015) suggests that the micro-environments on these biotic surfaces differ from that of other substrates, but the specific factors that favor these unique diatom assemblages remain unknown. Familiar, widely distributed benthic species are often observed only in very low abundance in epizoic communities, suggesting that they are incidental and originate from the animal's surrounding environment (Nemoto 1956, Denys 1997).

The degree of host specificity, endemism, and the biogeographical distribution of epizoic taxa are largely unknown due to the scarcity of epizoic diatom investigations. Diatom species of the epizoic genera *Epipellis* Holmes (1985: 53), *Bennettella* Holmes (1985: 48), *Tursiocola* Holmes, Nagasawa & Takano (1993a: 5) and *Epiphalaina* Holmes, Nagasawa & Takano (1993a: 4), a group commonly referred to as the "ceticolous taxa", have been observed on a few different whale and porpoise species (Holmes 1985, Holmes *et al*. 1989, 1993a, 1993b, Denys 1997), one of the best studied groups of host animals. Recently, new species of *Tursiocola* have been described from a freshwater turtle (Wetzel *et al*. 2012) and a euryhaline West Indian manatee (Frankovich *et al*. 2015), expanding the range of *Tursiocola* into freshwater environments and the variety of known host animals.

As part of an effort to increase the diversity of host animals examined for their epizoic diatom assemblages, we recently observed an unknown diatom taxon from the dorsal neck skin of loggerhead turtles *Caretta caretta*. Scanning electron microscopy (SEM) revealed this entity to be an undescribed species of the genus *Tursiocola*, as indicated by the presence of the unique "butterfly structure" on the interior of the valves. The present study describes this new species as *Tursiocola denysii*, and discusses affinities and differences with other described species within the genus. This is the first report of a new epizoic diatom species from the skin of loggerhead sea turtles.

Accepted by Saúl Blanco Lanza: 1 Nov. 2015; published: 18 Nov. 2015