

## BRIEF NOTE

### THE OCCURRENCE OF *EPISTYLIS NIAGARAE* (CLIOPHORA: PERITRICHIDA) ON FISHES FROM THE ISLAND REGION OF WESTERN LAKE ERIE<sup>1</sup>

JOHN L. CRITES, Department of Zoology and the Center for Lake Erie Area Research, The Ohio State University, Columbus, OH 43210

Ohio J. Sci. 77(4); 193, 1977

Several species of the genus *Epistylis* have been recorded from aquatic arthropods, particularly crayfishes, and from the carapaces of turtles in North America (Bishop and Jahn 1941; Kudo 1954). In Europe, a few studies have noted the presence of species of *Epistylis* on warm-water fishes (Kahl 1935; Lom and Vavra 1961; Lom 1966; Rautiskis 1970); but in North America all records from fish hosts, with two exceptions, are from salmonid fishes (Davis 1953; Fischthal 1949; Hoffman 1967; Leitritz 1960). The exceptions are Fischthal (1949), who recorded *Epistylis* sp. from a darter in a Wisconsin stream and Rogers (1971), who found it in pond fishes in Southeastern United States. There are no previous records of *Epistylis* from any of the species of fishes of the Great Lakes.

From June through September of 1976, approximately 500 fishes were collected alive by electro-shocking and trap net from Fisheries Bay and Put-In-Bay of the South Bass Island, Ottawa County, Ohio in Lake Erie. Transparent, gray, gelatinous-like masses, up to 6.8 cm in diameter and raised to a height 1.2 cm above the skin covering the scales of the lateral and postero-lateral body regions, occurred on 10 of these fishes. Fishes bearing these masses were of 3 different genera: 4 smallmouth bass, *Micropterus dolomieu*, 2 rock bass, *Ambloplites rupestris*; and 4 freshwater-drum, *Aplodinotus grunniens*. Material from these masses was examined microscopically and was found to be composed of the stalked

colonies of a peritrichous, ciliated protozoan. Living specimens were studied with a phase microscope and other specimens were fixed and stained with Semichon's Carmine or Heidenhain's Iron Haematoxylin and mounted in picolyte. The protozoan was identified as *Epistylis niagarae* Kellicott, 1883. The basal portion of the primary stalks had penetrated through the epidermis and into the hypodentine of the scales of the fish hosts. Scale erosion was evident at the sites of stalk attachment. Only the outer, posterior portions of the scales served as sites of stalk attachment and no stalks were attached in between the overlapped parts of the scales. The penetration of the epidermis of fish hosts by *Epistylis* may produce effects which favor invasion by other ciliates. Two of the smallmouth bass, one rock bass and one freshwater-drum were also infected in the same area with *Trichodina* sp. and one small mouth bass was infected with *Ichthyophthirius multifiliis*.

A voucher slide of scales with stained specimens of *Epistylis niagarae* attached was filed with the Ohio State University Museum of Zoology, OSUM No. 1. This is the first record of any species of *Epistylis* associated with these fish hosts in the Western Hemisphere.

*Acknowledgments.* The author wishes to thank Dr. C. E. Herdendorf, Director, Center for Lake Erie Area Research for providing laboratory facilities and Lynwood MacLean and Donald Hair for help in collecting fishes.

#### LITERATURE CITED

Bishop, E. L. and T. L. Jahn 1941 Observations on colonial peritrichs (Ciliata: Protozoa) of the Okoboji Region. Proc. Iowa Acad. Sci. 48: 417-421.

<sup>1</sup>Manuscript received December 13, 1976 and in revised form, as a note, February 24, 1977 (#76-98).

- Davis, H. S. 1953 Culture and Diseases of Game Fishes. Univ. Calif. Press, Berkeley. 332 p.
- Fischthal, J. H. 1949. *Epistylis*, a peritrichous protozoan on hatchery brook trout. Prog. Fish Cult. 11: 122-124.
- Hoffman, G. L. 1967. Parasites of North American Freshwater Fishes. Univ. Calif. Press. 488 p.
- Kahl, A. 1935 Urtiere oder Protozoa. I. Wimpertiere oder Ciliata (Infusoria). Eine Bearbeitung der freilebenden und ectocommensalen Infusorien der Erde, unter Ausschluss der Tintinnidae. 4. Peritrichida und Chonotricha. Tierwelt Deutschlands (Dahl). Teil 30: 651-886.
- Kudo, R. R. 1954 Protozoology. 4th Ed. Charles C. Thomas, Springfield, Ill. 966 p.
- Leitritz, E. 1960. Trout and salmon culture. Fish. Bull. 107, State of Calif., Dept. Fish and Game. 169 p.
- Lom, J. 1966 Sessiline peritrichs from the surface of some freshwater fishes. Folia Parasitol. (Praha). 13: 36-56.
- and J. Vavra 1961 *Epistylis lwoffi* (?) from the skin of perches. Acta Zool. Bohemoslov. 25: 273-276.
- Rautiskis, E. Y. 1970 Parasites of the most important food fish species in Lake Dusia. Liet. TSR Mokslu Akad. Dar. 52: 109-118. (In Russian, with English summary).
- Rogers, W. A. 1971 Disease in fish due to the protozoan *Epistylis* (Ciliata: Peritricha) in the Southeastern U.S., Proceed. 25th Ann. Conf. Southeastern Assoc. Game and Fish Comm. 25: 493-496.