

Common Freshwater Fish Parasites Pictorial Guide: Flagellates¹

Deborah B. Pouder, Eric W. Curtis, and Roy P.E. Yanong²

Introduction

This publication is one in a series of pictorial guides that is designed to assist in the identification of common freshwater fish parasites. The publications included in this series are:

- Common Freshwater Fish Parasites Pictorial Guide: Sessile Ciliates
- Common Freshwater Fish Parasites Pictorial Guide: Motile Ciliates
- Common Freshwater Fish Parasites Pictorial Guide: Flagellates
- Common Freshwater Fish Parasites Pictorial Guide: Dinoflagellates, Coccidia, Microsporidians, & Myxozoans
- Common Freshwater Fish Parasites Pictorial Guide: Monogeneans
- Common Freshwater Fish Parasites Pictorial Guide: Digenean Trematodes

- Common Freshwater Fish Parasites Pictorial Guide: Nematodes
- Common Freshwater Fish Parasites Pictorial Guide: Acanthocephalans, Cestodes, Leeches, & Pentastomes
- Common Freshwater Fish Parasites Pictorial Guide: Crustaceans

The information provided in this guide is not intended to be a complete, detailed description of each parasite or parasite group and its characteristics but rather is intended to assist in the visual identification of some of the most common species or groups of parasites seen in freshwater fish. For further information on each parasite, refer to publications in the “Recommended Reading” and “Reference” sections below.

Guide Information

The following information is provided for each parasite on the guide.

-
1. This document is Fact Sheet FA-109, one of a series from the Tropical Aquaculture Laboratory, Department of Fisheries and Aquatic Sciences, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. First published: July 2005. Reviewed May 2009. Please visit the EDIS Web Site at <http://edis.ifas.ufl.edu>.
 2. Deborah B. Pouder, Coordinator of Research Programs and Services; Eric W. Curtis, former Biological Scientist, and Roy P.E. Yanong, Associate Professor, Tropical Aquaculture Laboratory, Ruskin, FL 33570, Department of Fisheries and Aquatic Sciences, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. U.S. Department of Agriculture, Cooperative Extension Service, University of Florida, IFAS, Florida A. & M. University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Millie Ferrer, Interim Dean

- **Target Tissue:** provides the location on/in the fish where the parasite is most commonly found.
- **Characteristic:** provides a brief description about the appearance of the parasite.
- **Size:** provides the size or size range of the parasite. (1 μm = 0.001 mm = 0.0001 cm) (μm = micron or micrometer; mm = millimeter; cm = centimeter)
- **Movement:** provides the type of movement, if any, of the parasite.
- **Note:** provides a brief comment of interest about the parasite.

Printing Tips

For the best results as a pictorial guide, print this document in color on photo quality paper at a photo or “best” setting.

Recommended Reading

SRAC Publication No. 410 Calculating Treatments for Ponds and Tanks. Southern Regional Aquaculture Center. <http://srac.tamu.edu/410fs.pdf>

SRAC Publication No. 475 Proliferative Gill Disease (Hamburger Gill Disease). Southern Regional Aquaculture Center. <http://srac.tamu.edu/475fs.pdf>

SRAC Publication No. 4701 Protozoan Parasites. Southern Regional Aquaculture Center. <http://srac.tamu.edu/4701fs.pdf>

UF/IFAS Circular 91 Nematode (Roundworm) Infections in Fish. <http://edis.ifas.ufl.edu/FA091>

UF/IFAS Circular 120 Fish Health Management Considerations in Recirculating Aquaculture Systems - Part 1: Introduction and General Principles. <http://edis.ifas.ufl.edu/FA099>

UF/IFAS Circular 121 Fish Health Management Considerations in Recirculating Aquaculture Systems - Part 2: Pathogens. <http://edis.ifas.ufl.edu/FA100>

UF/IFAS Circular 122 Fish Health Management Considerations in Recirculating Aquaculture Systems - Part 3: General Recommendations and Problem Solving Approaches. <http://edis.ifas.ufl.edu/FA101>

UF/IFAS Circular 716 Introduction to Freshwater Fish Parasites. <http://edis.ifas.ufl.edu/FA041>

UF/IFAS Circular 919 Stress--It's Role in Fish Disease. <http://edis.ifas.ufl.edu/FA005>

UF/IFAS Circular 920 *Ichthyophthirius multifiliis* (White Spot) Infections in Fish. <http://edis.ifas.ufl.edu/FA006>

UF/IFAS Circular 921 Introduction to Fish Health Management. <http://edis.ifas.ufl.edu/FA004>

UF/IFAS Fact Sheet FA-13 Use of Copper in Freshwater Aquaculture and Farm Ponds. <http://edis.ifas.ufl.edu/FA008>

UF/IFAS Fact Sheet FA-23 The Use of Potassium Permanganate in Fish Ponds. <http://edis.ifas.ufl.edu/FA032>

UF/IFAS Fact Sheet FA-28 Monogenean Parasites of Fish. <http://edis.ifas.ufl.edu/FA033>

UF/IFAS Fact Sheet FA-37 Use of Potassium Permanganate to Control External Infections of Ornamental Fish. <http://edis.ifas.ufl.edu/FA027>

UF/IFAS Fact Sheet FA-55 Submission of Fish for Diagnostic Evaluation. <http://edis.ifas.ufl.edu/FA055>

UF/IFAS Fact Sheet FA-90 Pentastomid Infections in Fish. <http://edis.ifas.ufl.edu/FA090>

UF/IFAS Fact Sheet FA-107 Common Freshwater Fish Parasites Pictorial Guide: Sessile Ciliates. <http://edis.ifas.ufl.edu/FA107>

UF/IFAS Fact Sheet FA-108 Common Freshwater Fish Parasites Pictorial Guide: Motile Ciliates. <http://edis.ifas.ufl.edu/FA108>

UF/IFAS Fact Sheet FA-110 Common Freshwater Fish Parasites Pictorial Guide: Dinoflagellates, Coccidia, Microsporidians, and Myxozoans. <http://edis.ifas.ufl.edu/FA110>

UF/IFAS Fact Sheet FA-111 Common Freshwater Fish Parasites Pictorial Guide: Monogeneans. <http://edis.ifas.ufl.edu/FA111>

UF/IFAS Fact Sheet FA-112 Common Freshwater Fish Parasites Pictorial Guide: Digenean Trematodes. <http://edis.ifas.ufl.edu/FA112>

UF/IFAS Fact Sheet FA-113 Common Freshwater Fish Parasites Pictorial Guide: Nematodes. <http://edis.ifas.ufl.edu/FA113>

UF/IFAS Fact Sheet FA-114 Common Freshwater Fish Parasites Pictorial Guide: Acanthocephalans, Cestodes, Leeches, and Pentastomes. <http://edis.ifas.ufl.edu/FA114>

UF/IFAS Fact Sheet FA-115 Common Freshwater Fish Parasites Pictorial Guide: Crustaceans. <http://edis.ifas.ufl.edu/FA115>

UF/IFAS Fact Sheet VM-67 Management of Hexamita in Ornamental Cichlids. <http://edis.ifas.ufl.edu/VM053>

UF/IFAS Fact Sheet VM-77 Use of Formalin to Control Fish Parasites. <http://edis.ifas.ufl.edu/VM061>

UF/IFAS Fact Sheet VM-78 Bath Treatment for Sick Fish. <http://edis.ifas.ufl.edu/VM037>

UF/IFAS Fact Sheet VM-85 "Red Sore Disease" in Game Fish. <http://edis.ifas.ufl.edu/VM059>

UF/IFAS Fact Sheet VM-86 Use of Salt in Aquaculture. <http://edis.ifas.ufl.edu/VM007>

UF/IFAS Fact Sheet VM-87 Sanitation Practices for Aquaculture Facilities. <http://edis.ifas.ufl.edu/AE081>

UF/IFAS Fact Sheet VM-104 *Cryptobia iubilans* in Cichlids. <http://edis.ifas.ufl.edu/VM077>

BSAVA manual of ornamental fish, second edition. British Small Animal Veterinary Association, Gloucester, England.

Noga, E.J. 1996. Fish disease: diagnosis and treatment. Mosby-Yearbook, Inc., St. Louis, MO.

Stoskopf, M.K. 1993. Fish medicine. W.B. Saunders Company, Philadelphia, PA.

Woo, P.T.K., editor. 1995. Fish diseases and disorders, volume 1: protozoan and metazoan infections. CAB International, Wallingford, United Kingdom.

Yanong, R.P.E., E. Curtis, R. Russo, R. Francis-Floyd, R. Klinger, I. Berzins, K. Kelley, and S. L. Poynton. 2004. *Cryptobia iubilans* infection in juvenile discus. Journal of the American Veterinary Medical Association 224(10):1644-1650.

References

Hoffman, G.L. 1999. Parasites of North American freshwater fishes. Cornell University Press, Ithaca, NY.

Longshaw, M. and S.W. Feist. 2001. Parasitic diseases. Pages 167-183 in W.H. Wildgoose, editor.

Deborah B. Poulder, Eric W. Curtis, Roy P.E. Yanong

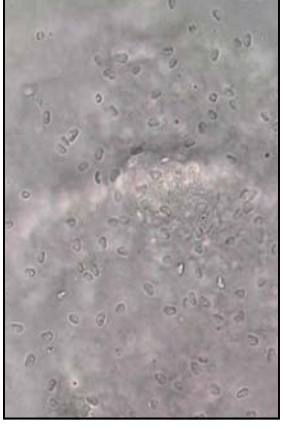
Cryptobia iubilans



Target Tissues: Stomach; may be present in other internal organs
Appearance: Elongated to teardrop-shaped
Size: Approx. 5.5-12.5 μm x 3.5-5.5 μm
Movement: Free-moving; may appear to undulate
Note: Typically associated with granulomas in stomach; found only in cichlids to date; similar looking species found only externally on fish



Ichthyobodo (Formerly *Costia*)



Target Tissues: Skin, fin, gills
Appearance: Teardrop-shaped
Size: Approx. 5-18 μm x 3-8 μm
Movement: Free-moving; corkscrew swimming pattern; may appear to flicker like flame
Note: Infected fish often secrete excess mucus



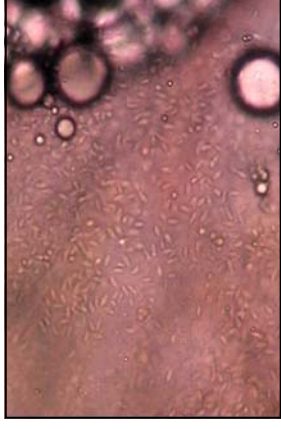
Protoopalina symphysodonis



Target Tissues: Gastrointestinal tract
Appearance: Spindle-shaped (rounded at one end, tapered at other end) or cylindrical; circular in cross-section; resembles a ciliate
Size: Approx. 45-140 μm x 6-15 μm
Movement: Free-moving
Note: Usually commensal



Spiroucleus vortens ("Hexamita")



Target Tissues: Gastrointestinal tract
Appearance: Pear to barrel-shaped
Size: Approx. 5-12 μm x 2-13 μm
Movement: Free-moving; rapid and directed movement
Note: Common in cichlids; similar/related flagellates ("Hexamita") seen in other fish groups

