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Source: Journal of Wildlife Diseases, 15(3) : 429-431

Published By: Wildlife Disease Association

URL: https://doi.org/10.7589/0090-3558-15.3.429

THE PREVALENCE OF *Trypanosoma catostomi* IN WHITE SUCKER *(Catostomus commersoni)* FROM SOUTHERN ONTARIO

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Abstract: During the summer of 1975, 285 white suckers *(Catostomus commersoni)* from 10 localities in southern Ontario were examined for trypanosomes. *Trypanosoma catostomi* Daly and DeGiusti, 1971 was found in the blood of 11.6% of the fish examined using the haematocrit centrifugation technique. Infected juvenile fish (33%) and infected adult fish (4%) were found in 6 of 10 locations.

INTRODUCTION

The hemoflagellate *Trypanosoma catostomi* was described by Daly and DeGiusti[2] from the blood of white sucker *(Catostomus commersoni)* from Flemings Creek in Washtenaw County, Michigan. No further information about this parasite has appeared in the literature.

The purpose of this paper is to report the prevalence of *T. catostomi* in white sucker from southern Ontario.

MATERIALS AND METHODS

White sucker from 10 localities in southern Ontario (Table 1) were examined for trypanosomes during the summer of 1975. Blood was obtained from fish over 21 cm in standard length by cardiac puncture and from the caudal blood vessel of smaller fish by severing the caudal peduncle. The hematocrit centrifugation technique[4] was used to examine a minimum of three capillary tubes of blood from each large fish (over 21 cm in standard length) and all the blood that was obtainable from smaller fish. The buffy layer of the centrifuged capillary tubes of blood from a heavily infected fish (approximately 150 trypanosomes per capillary tube) were smeared on slides. The slides were air dried, fixed in absolute methanol and then transferred to buffered formalin and subsequently stained in Giemsa's stain.[1] One hundred specimens were outlined (magnification of 1000×) with the aid of a camera lucida and measured using dividers set so the points were separated by a distance equal to 1 μm on the projected image.

RESULTS AND DISCUSSION

T. catostomi was observed in 33 of 285 white sucker (prevalence 11.6%). All but one infected fish were obtained from rivers or creeks (Table 1). Infected fish occured in three localities where only juvenile fish were collected and in three of seven areas where only adult fish were examined.

Morphologically, the trypanosome (Fig. 1) fits the description of *T. catostomi*. No polymorphism nor division stages were seen in the blood during this study. This agrees with the findings of Daly and DeGiusti.[2]

Body measurements in μm of 100 specimens are: length of body, 49.2 ± 0.42 (36.8-58.7);[3] length of free flagellum,

[1] This work was supported by the National Research Council of Canada.

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[3] Mean ± standard error (range).

TABLE 1. Prevalence of *Trypansoma catostomi* in *Catostomus commersoni* from 10 localities in southern Ontario.

Locations	Number of fish examined	Number of fish infected	Prevalence (%)
Lake Huron within a 24km radius of Sarnia	64	0	0
Lake Erie within a 32 km radius of Port Rowan	45	1	2.2%
Burlington Bay	10	0	0
Sixteen Mile Creek	11	0	0
Humber River	27	4	14.8%
Nottawasaga River	27	3	11.1%
Lake Opeongo	25	0	0
Indian River[a]	14	2	14.3%
Sources of the Grand River around Alma[a]	32	20	66.7%
Ellis Creek[a]	30	3	10.0%
Totals	285	33	11.6%

[a]Locations where only juvenile fish (standard length less than 18.5 cm) were sampled. All remaining fish were greater than 21.0 cm in standard length.

FIGURE 1. *Trypanosoma catostomi* in the blood of white sucker (Giemsa's stain).

13.4 ± 0.29 (6.0-22.0); total length, 62.2 ± 0.37 (50.9-70.6); length of nucleus, 4.8 ± 0.08 (2.9-7.0); width of nucleus, 1.6 ± 0.38 (0.6-2.8); distance between kinetoplast and posterior tip, 3.2 ± 0.80 (1.5-5.5); distance between middle of nucleus and kinetoplast, 26.5 ± 0.20 (21.2-31.0); nuclear index (distance between middle of nucleus and posterior tip divided by distance between middle of nucleus and anterior tip), 1.6 ± 0.03 (1.1-2.5). These measurements were compared (using the "Student's" t-test[3]) with those of methanol fixed specimens given by Daly and DeGiusti.[2] Significant differences were found between (i) lengths of the free flagella, (ii) total lengths, (iii) distances between kinetoplasts and posterior tips and (iv) distances between kinetoplasts and middle of nuclei. Since there was no significant difference in the nuclear index, it appears that the difference in the last two measurements are due to a change in the position of the kinetoplast.

This may be the result of centrifugation as was shown in centrifuged *Trypanosoma pipientis*.[4] The significant difference in total lengths appears to result from differences in the free flagella since body lengths are similar to those described by Daly and DeGiusti.[2] The length of the free flagellum is highly variable and consequently cannot be used as a diagnostic character. Thus the trypanosome observed in this study was identified as *T. catostomi*.

Acknowledgements

The authors thank Dr. R.C. Anderson for his comments and suggestions during the preparation of this manuscript.

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Received for publication 1 August 1978