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THE VARIABILITY, LOCATION AND DISTRIBUTION OF GYRODACTYLUS STANKOVICI ERGENS, 1970 (GYRODACTYLIDAE: MONOGENOIDEA)

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Abstract. The present paper contains data on the morphological and metrical variability of the determining signs of *G. stankovici*, on its location and geographical distribution. These confirm the author's results of earlier experimental work on the taxonomic value of classifying criteria of members of the genus *Gyrodactylus*.

MATERIAL AND METHODS

We examined a total of 67 fixed individuals of *G. stankovici* collected from *Cyprinus carpio*. The fishes were caught at the various seasons of the year in the waters of Czechoslovakia (lg. Ergens), Hungary (lg. Molnár and Ergens), U.S.S.R. [Azerbaidzhan S.S.R. (lg. Mikailov), Estonian S.S.R. (lg. Kasesalu), Lithuanian S.S.R. (lg. Bogdanova), Ukrainian S.S.R. (lg. Jakovchuk), Uzbek S.S.R. (lg. Urazbayev), and Yugoslavia (lg. Ergens)]. The worms were studied with a phase contrast microscope. All measurements were made in the mode described by Ergens and Lom (1970).

RESULTS

Morphological variability (Fig.1a—f). The basic shape of the anchors is considerably stable; occasional slight changes occur in the apical part of the inner roots. This may be explained mainly by the fact that, during ontogenesis, these roots attain their final shape at a much later time than all other chitinoid parts of the haptor (Ergens 1965 a, 1965 b). Also both connecting bars are almost constant in shape and occasional morphological deviations are mostly due to fixation. An absolute morphological stability has been found with the marginal hooks offering a further confirmation of the results of our earlier work (Ergens 1965 a, 1965 b) dealing with the taxonomic value of the classifying criteria of members of the genus *Gyrodactylus*.

Metrical variability (Table 1). The metrical variability of most of the chitinoid parts of the haptor of *G. stankovici* is considerable in comparison with that of other species of the genus *Gyrodactylus* (e.g. *G. shulmani* Ling Mo-en, 1962). The only plausible explanation may be the fact that the material inspected consisted of individuals obtained from a large number of populations. This metrical variability may have been influenced by various other factors such as seasonal variation, the age of the host etc. which cannot be ruled out. It should be emphasized that similar to the morphological variability also the metrical variability of the marginal hooks is almost stable.

Table 1. Measurements of the chitinoid parts of the haptor and data on the location of *Gyrodactylus stankovici* Ergens, 1970 collected from *Cyprinus carpio* in various places of the palearctic region

	Yugoslavia	Hungaria	Czechoslovakia	Ukrainian S.S.R.	Estonian S.S.R.	Lithuanian S.S.R.	Azerbaidzhan S.S.R.	Uzbek S.S.R.	Overall variability
Overall length of anchors	0.058–0.059	0.057–0.061	0.062–0.063	0.053	0.053–0.056	0.050–0.051	0.061–0.063	0.052–0.063	0.050–0.063
Length of basal part	0.043–0.045	0.042–0.044	0.044–0.046	0.038	0.041	0.038	0.045	0.035–0.043	0.035–0.046
Length of point	0.029–0.030	0.030–0.033	0.032–0.033	0.026	0.029	0.023	0.032	0.027–0.031	0.023–0.033
Length of inner root	0.020–0.022	0.020–0.022	0.023	0.018	0.018–0.021	0.016	0.020–0.021	0.019–0.021	0.016–0.023
Length of principal connecting bar	0.007–0.008	0.007–0.008	0.007–0.007	0.007	0.006–0.007	0.007	0.007	0.006–0.007	0.006–0.008
Width of principal connecting bar	0.024	0.022–0.023	0.025	0.020	0.022	0.021	0.022–0.023	0.021–0.024	0.020–0.025
Length of membranous extension	0.015–0.016	0.014–0.016	0.017–0.018	–	0.012–0.015	0.012	0.016–0.018	0.014–0.017	0.012–0.018
Width of auxiliary bar	0.014–0.015	0.014–0.019	0.016–0.017	0.013	–	0.013	0.019	0.013–0.019	0.013–0.019
Overall length of marginal hooks	0.025	0.024–0.026	0.026–0.027	0.023	0.026–0.027	0.024	0.026–0.027	0.024–0.027	0.023–0.027
Length of the hook proper	0.005–0.006	0.005	0.005	0.005	0.005–0.006	0.005	0.005	0.005–0.006	0.005–0.006
Location	nasal cavities	fins	gills fins	fins	fins	skin	fins	nasal cavities, skin	nasal cavities, skin, fins, gills

Location. The sites on the host's body parasitized most frequently by *G. stankovici*, are the fins and that irrespective of the host's age (we examined fishes up to age-group 5+). In younger fishes (up to 2+) these parasites were found also on the gills and in the nasal cavities; in fishes of age-group 0+ they could be found everywhere on the skin.

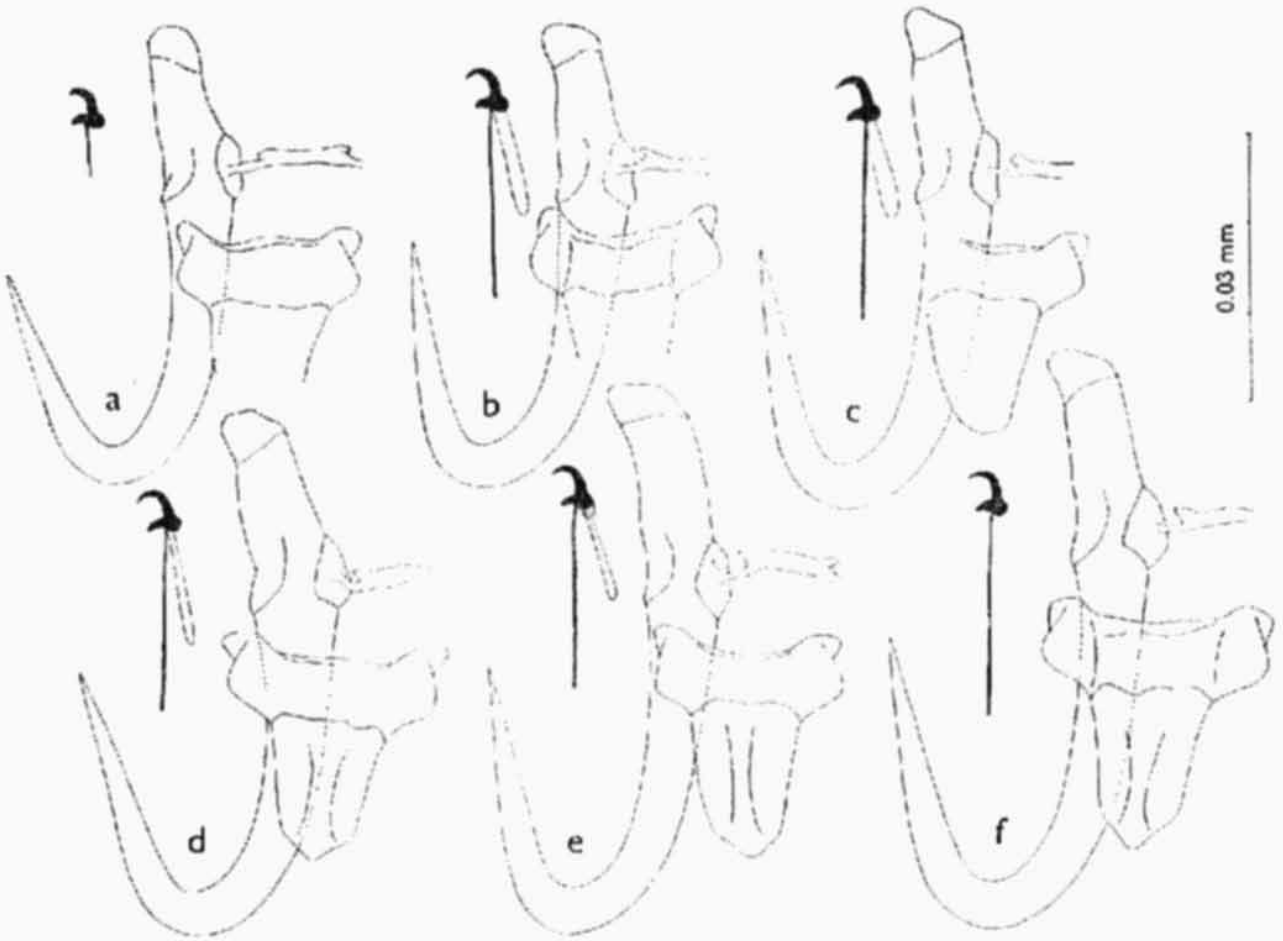

Fig. 1. Chitinoid parts of the haptor of various specimens of *G. stankovici* Ergens, 1970. a — from the skin of *C. carpio* from the Lithuanian S.S.R. b, c — from the skin of *C. carpio* from Uzbek S.S.R.; d — holotype; e — from the fins of *C. carpio* from Hungaria; f — from the gills of *C. carpio* from Czechoslovakia.

Geographical distribution. The species *G. stankovici*, as mentioned earlier in the text, has been recorded from the territory of Czechoslovakia, Hungary, U.S.S.R. (Azerbaidzhan S.S.R., Estonian S.S.R., Lithuanian S.S.R., Ukrainian S.S.R., Uzbek S.S.R.) and Yugoslavia. According to Berg's (1949) zonation of zoogeographical areas and to his terminology, the distribution of this parasite is restricted to the Turkestan, the Ponto-Aral-Caspic and the Baltic provinces of the palaearctic region. It seems possible that the area of distribution of *G. stankovici* may become extended and this, partly, by the active penetration of *Cyprinus carpio* to new areas, partly by the frequent translocation of these fishes from one body of water to another for purposes of breeding of acclimatization.