

CAMPTOCHIRONOMUS HUNGARICUS, A NEW CHIRONOMUS SPECIES

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Introduction

In Hungary, since 1945, rice has been grown in a larger and larger area. Growing is taking place first of all and almost exclusively in alkali soils for the following reasons:

They preserve well the inundation water; other culture plants do not grow there because of the high Na_2CO_3 content, they can, therefore, be employed profitably exclusively in that way, apart from the possibility of increasing and extending the cultivation without decreasing the areas of growing other culture plants. Thus the sodic soils can be made use of, owing to growing rice.

The high salt content of the alkali areas used in growing make possible only the cultivation of rice in the given area for several years, assuring anyway favourable conditions to parasites breeding rapidly. The rice-field fauna has developed from the animal kingdom of stagnant waters of the adjacent territories as the rice-fields were inundated from these. The euryhalinic and eurythermous animal species of the standing waters grow to be dominant species in the rice-fields of sodic soil. The high degree accommodation is manifested also in the alimentary accommodation in the course of which several animal species, indifferent before, have become the parasites of rice (Megyeri, 1960).

It is clear from the literature in this country that the parasites are in the way to be cleared up and it is under elaboration, too, how to be protected against them (Szekér, 1953; Berczik, 1957; Bognár, 1957; Megyeri, 1960; Szilvássy, 1960).

In 1963, a systematic faunistical investigation of the rice-fields and backwater in the environs of Szarvas began and, as a result of that, a new *Chironomus* species was found in 1967.

Description of habitats

At both banks of the backwater, *Phragmitetum* associatic is dominant. In the irrigation canal there isn't any fully developed association but some monocotyledonous weeds are living there, as well. Larvae can be found embedded in mud.

The backwater is lying at Szarvas, in an alkali area, and the irrigation canal — where the investigations were carried out in the neighbourhood of Békésszentandrás (west of Szarvas) — is in an alkali area, as well. Its water has come from the backwater.

Methods

In the areas mentioned above we have performed observations and, as far as possible, collections, too, fortnightly in every season. From the mud, there were picked samples with a $10 \times 10 \times 5$ cm grabber. From early spring till late autumn, we have netted from the swarming imago, netting also the plants covering the rice-fields and their environment, as well the riparian plants of the backwater.

Results of investigations

In the course of our collection, on the first of May 1967, we could find one pupa, on the 21st of May three imagos in the mud of the backwater, and on the 29th of November five larvae in the irrigation canal. The larvae were grown to be imago in laboratory culture vessels.

Characterization of the species:

Larvae: 11—15 mm long, light red, living in the mud of stagnant or slow-flowing water. Its food is: root of monocotyledonous plants and necrotic plant tissues. It consumes first of all the living particles. During winter, they survive in the wet mud even without being covered by water. From most of the larvae frozen in the mud, there develop imagos in spring. They cannot be separated from the other larvae of *Camptochironomus* sp. On February 6th and February 16th 1968, we collected larvae from the mud frozen through.

Pupa: It is 11—13 mm long. It cannot be separated from pupas of related species on the basis of its marks.

Imago: 9—12 mm. The male is yellowish-red, the mesonotum with brownish-yellow stripes. The posterior part of metanotum is dark brown. Its characteristics are a grey haltera, yellowish pulvillum developed moderately. Its tarsus is short, covered with dense bristles.

Its abdomen is yellowish-green, the tergite of segments nos. 6—8 is brown. The sternites of segments nos. 2—5 are gradually elongated, so the abdomen widens and thickens more and more, then at segments nos. 6—8 it grows quickly narrower. Thus the body of a male of the animal species is similar to the fuselage of a helicopter. $AR=4$. Its wings are opaque glass-like, r-m is black. $LR=1,2$.

The appendix of the hypopygium dorsalis is much longer than the apex of appendices derived from the bilateral excises. The appendix of the dorsal lamella first becomes narrower near to its end and then it again grows wider.

Appendix no. 1 of the hypopygium is rudimentary but perceptible, its second appendix is, however, well-developed.

Swarming: in April, May, October, in a mild autumn also in November.

We have named the species described *CAMPTOCHIRONOMUS HUNGARICUS*.

On the basis of nutritive biologic investigations performed on larvae of the species, we have established that they consume both living and dead parts of plants. It is proved by feeding experiments carried out with germinated rice that they gnaw the roots of young rice. The larvae can be grown imagos exclusively on that food. There has increased, therefore, with this species not only the number of known species of animals

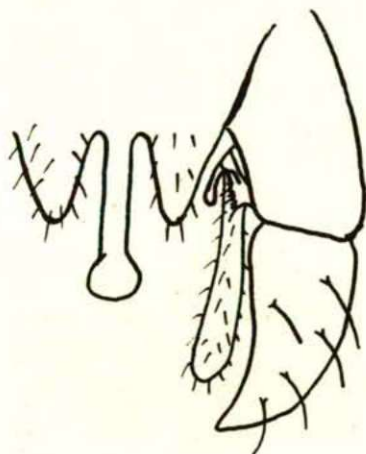


Fig. 1. *Camptochironomus Hungaricus* nov. spec. Hypopygium (original).

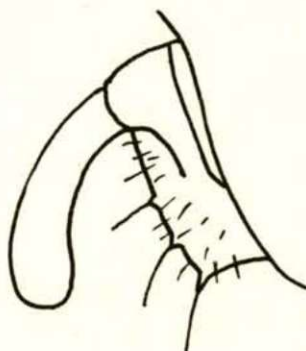


Fig. 2. The 1. extension (original).

but also that of the rice parasites recognized. So long we have not learned the presence of larvae in large numbers. With full knowledge of their nutritive biology, however, their pullulation in the rice-fields is to be expected, thus one has to reckon with the damage of the larvae of this species, as well, in the future. It is more and more urgent, therefore to elaborate an adequate way of defence against the larvae of this *Chironomus* species.

Summary

In 1967, in the course of the systematic faunistical investigations of the rice-fields adjacent to Szarvas and the backwaters of the Triple Kőrös at Szarvas, in connection with the species *Chironomus*, we observed a new *Chironomus* species in the shapes of larvae, pupae, and imagos. On the basis of nutritive biological laboratory investigations on larvae, it came to light that they feed on living and dead monocotyledonous plant particlese. It has been proved, as well, that they consume

also the roots of germinating rice, and even they can grow igamos exclusively on that food. The larvae survive in winter, frozen in a wet mud, even without being covered by water, as it was proved by the collections performed in February.

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Fig. 3. The damage of *Camptochironomus Hungaricus* grub on the rice roots, which are totally ruined (original photo).

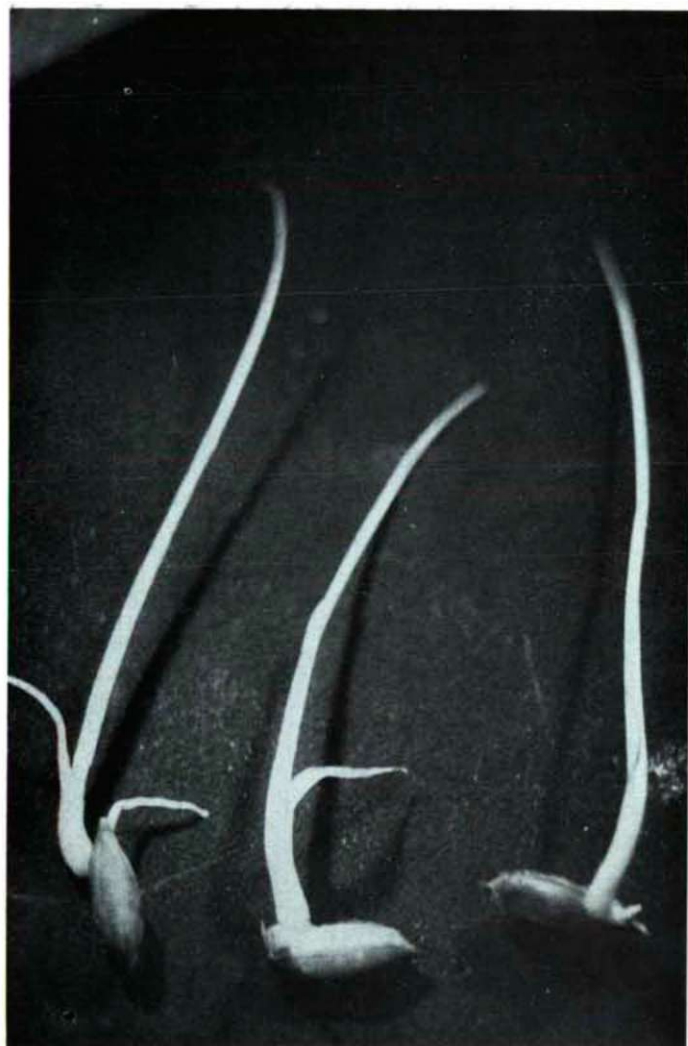


Fig. 3