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Occurrence of *Pseudodactylogyrus anguillae* (YIN & SPROSTON, 1948) and *P. bini* (KIKUCHI, 1929), parasites of eel, *Anguilla anguilla* L., in Austria

(Monogenea: Dactylogyridae)

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Abstract

First records of *Pseudodactylogyrus anguillae* and *P. bini* (Monogenea), parasites of eels, from Austria are reported.

Key words: *Anguilla anguilla,* parasites, Monogenea, *Pseudodactylogyrus anguillae*, *Pseudodactylogyrus bini*, first record, Austria.

Zusammenfassung

Die Aalparasiten *Pseudodactylogyrus anguillae* und *Pseudodactylogyrus bini* (Monogenea) konnten erstmals für Österreich nachgewiesen werden.

Introduction

The dactylogyrid monogeneans *Pseudodactylogyrus anguillae* (YIN & SPROSTON, 1948) and *P. bini* (KIKUCHI, 1929) are specific parasites of eels (*Anguilla* spp.), originally described from *Anguilla japonica* TEMMING & SCHLEGEL, 1848 (KIKUCHI 1929, YIN & SPROSTON 1948). According to GUSSEV (1985), both species initially occured in *A. japonica* and *A. reinhardti* STEINDACHNER, 1867, in Japan, China, and Australia. However, recent data by KENNEDY (1993) and CONE & MARCOGLIESE (1995) cast doubts about this assumption with some indications that at least *P. anguillae* may be autochton in Europe and North America. Due to the fact that both monogeneans are rather pathogenic to their hosts and can cause mortality of heavily infected eels, they have attracted the attention of fish parasitologists and veterinarians since their appearence in Europe. *Pseudodactylogyrus* species have hitherto been reported from eels (*Anguilla anguilla* L.) in the Soviet Union, Germany, Poland, Denmark, Sweden, England, France, Spain, Portugal, Italy, and Hungary (KOIE 1988a, b, 1991, MALMBERG 1989, REIMER 1987, KENNEDY & FITCH 1990, LAMBERT & al. 1985, LE BRUN & al. 1986, SAROGLIA & al. 1985, SARAIVA 1995, MELLERGAARD & al. 1986, NIE & KENNEDY 1991, SANCHEZ & al. 1992, DZIKA &

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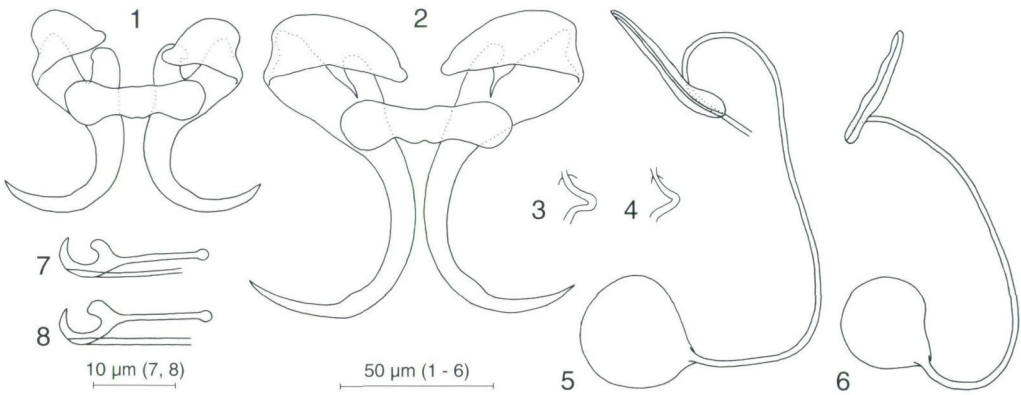

Fig. 1 - 8: Hard parts of *Pseudodactylogyrus bini* (1, 3, 5, 7) and *P. anguillae* (2, 4, 6, 8). (1, 2) haptoral parts; (3, 4) vaginal armament; (5, 6) copulatory organ; (7, 8) marginal hook.

al. 1995, GOLOVIN 1977, MOLNÁR 1983, 1984). Most detailed studies, which covered epidemiology, host-parasite relationships, ecology, immunology of infected hosts, etc., have been published by BUCHMANN (1988a, b, c, 1989, 1990, 1993), BUCHMANN & BJERREGAARD (1990), and BUCHMANN & al. (1987) in Denmark. This paper briefly surveys the occurrence of *P. anguillae* and *P. bini* in Austria, from where this pathogenic parasite has not been reported until now.

Material and method

As a basis for the present study, monogeneans were collected from 9 eels (42 - 79 cm) from the Ischler Ache, a brook in the lake district in Upper Austria (13. October 1994) and from 141 eels (total length 10 - 69 cm) from the Neusiedler See, a shallow lake 100 km SE of Vienna (during April, August and October 1995). In all cases only gills of the left side of the gill apparatus of the host fish were examined.

Tab. 1: Measurements of hard parts of *P. anguillae* and *P. bini* (in µm) from Neusiedler See.

	P. anguillae (n = 50)	*P. bini* (n = 50)
inner length of anchor	100 - 126	67 - 80
outer length of anchor	64 - 82	36 - 48
length of point	28 - 50	22 - 35
length of inner root	52 - 73	35 - 48
length of reflexed part of inner root	39 - 52	24 - 35
length of outer root	7 - 15	9 - 14
total length of marginal hook	15 - 19	16 - 20
length of connective bar	9 - 16	9 - 13
width of connective bar	50 - 64	42 - 54
length of copulatory organ	91 - 139	98 - 155
length of supporting part of copulatory organ	29 - 47	39 - 60
length of copulatory tube	191 - 254	191 - 250
length of vaginal armament	33 - 42	25 - 41

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Results

Examination of eels revealed the presence of both monogenean species *P. anguillae* and *P. bini* (Fig. 1, Tab. 1). In the Neusiedler See, 83 of 141 eels examined were infected with *P. bini*, mean intensity of infection being 6 (SD 7.3; range: 1 - 52 worms). In the Neusiedler See 94 of 141 host fish were infected with *P. anguillae*, mean intensity being 7 (SD 8.9; range: 1 - 57 worms). In the Ischler Ache 7 of 9 eels were infected with *P. bini*, mean intensity being 125 (SD 147.7; range: 3 - 363). No specimens of *P. anguillae* were found parasitizing eels of the Ischler Ache.

In Central Europe, *Pseudodactylogyrus* species have been found in eels from Hungary (MOLNÁR 1983, 1984) and the Czech Republic (Dr. Radim Ergens, Institute of Parasitology, Czech Acad. Sci., České Budějovice, unpublished data). The present findings demonstrate that these parasites occur also in natural lakes and brooks.

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