

Unraveling the hidden biodiversity – The establishment of DNA barcodes of fish-parasitizing Acanthocephala Koehltreuther, 1771 in view of taxonomic misidentifications, intraspecific variability and possible cryptic species

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Supporting information

Table S1. List of all genetically examined specimens of this study and our previous study (Reier *et al.*, 2019). Samples of this study are marked with an asterisk.

Table S2. List of morphological datasets based on confocal laser-scanning microscopy datasets

Table S1. List of all genetically examined specimens of this study and our previous study (Reier *et al.*, 2019). Samples of this study are marked with an asterisk.

Lab ID	BOLD	GenBank	Host species	State/Province	Waterbody
<i>Pomphorhynchus tereticollis</i>					
BF-P-001*	ACANT082-20	MT682954	<i>Oncorhynchus mykiss</i>	Styria	Stattegg (fish pond)
BF-P-002*	ACANT083-20	MT682955	<i>Oncorhynchus mykiss</i>	Styria	Stattegg (fish pond)
15042016-15A*	ACANT084-20	MT682956	<i>Barbatula barbatula</i>	Burgenland	River Leitha
Fish26-1	ACANT025-18	MK612534	<i>Zingel streber</i>	Styria	River Mur
Fish29-2	ACANT001-17	MK612545	<i>Alburnus alburnus</i>	Styria	River Mur
Fish32-2	ACANT026-18	MK612535	<i>Thymallus thymallus</i>	Styria	River Mur
Fish36-2	ACANT027-18	MK612536	<i>Alburnoides bipunctatus</i>	Styria	River Mur
Fish39-1	ACANT028-18	MK612537	<i>Pseudorasbora parva</i>	Styria	River Mur
Fish42-1	ACANT029-18	MK612538	<i>Barbus barbus</i>	Styria	River Mur
Fish45-5	ACANT030-18	MK612539	<i>Lota lota</i>	Styria	River Mur
Fish45-8	ACANT031-18	MK612540	<i>Lota lota</i>	Styria	River Mur
Fish45-9	ACANT032-18	MK612541	<i>Lota lota</i>	Styria	River Mur
Fish45-10	ACANT033-18	MK612542	<i>Lota lota</i>	Styria	River Mur
Fish45-11	ACANT034-18	MK612543	<i>Lota lota</i>	Styria	River Mur
Fish308-1	ACANT035-18	MK612544	<i>Zingel streber</i>	Styria	River Mur
FA1-1	ACANT036-18	MK612533	<i>Alburnus alburnus</i>	Vienna	River Danube
<i>Pomphorhynchus bosniacus</i>					
BF-P-003*	ACANT085-20	MT682953	<i>Oncorhynchus mykiss</i>	Styria	Stattegg (fish pond)
BF-P-004*	ACANT086-20	MT682952	<i>Oncorhynchus mykiss</i>	Styria	Stattegg (fish pond)
DK1-1	ACANT002-18	MK612511	<i>Leuciscus idus</i>	Vienna	River Danube
DK1-3	ACANT003-18	MK612512	<i>Leuciscus idus</i>	Vienna	River Danube
FA8-1	ACANT004-18	MK612513	<i>Squalius cephalus</i>	Vienna	River Danube
FA9-3	ACANT005-18	MK612514	<i>Barbus barbus</i>	Vienna	River Danube
FA9-4	ACANT006-18	MK612515	<i>Barbus barbus</i>	Vienna	River Danube
FA9-6	ACANT007-18	MK612516	<i>Barbus barbus</i>	Vienna	River Danube
FA9-DA01G-1	ACANT008-18	MK612517	<i>Barbus barbus</i>	Vienna	River Danube
FA9-DA02G-1	ACANT009-18	MK612518	<i>Barbus barbus</i>	Vienna	River Danube
FA9-DA03G-1	ACANT010-18	MK612519	<i>Barbus barbus</i>	Vienna	River Danube
FA9-DA04K-1	ACANT011-18	MK612520	<i>Barbus barbus</i>	Vienna	River Danube
FA9-DA05K-1	ACANT012-18	MK612521	<i>Barbus barbus</i>	Vienna	River Danube
FA9-DA06K-1	ACANT013-18	MK612506	<i>Barbus barbus</i>	Vienna	River Danube
FA9-DA07F-1	ACANT014-18	MK612505	<i>Barbus barbus</i>	Vienna	River Danube
FA9-DA09F-1	ACANT015-18	MK612504	<i>Barbus barbus</i>	Vienna	River Danube
FA9-DA12FK-1	ACANT016-18	MK612503	<i>Barbus barbus</i>	Vienna	River Danube
FA9-MA01G-1	ACANT017-18	MK612502	<i>Barbus barbus</i>	Vienna	River Danube
FA9-MA02G-1	ACANT018-18	MK612501	<i>Barbus barbus</i>	Vienna	River Danube
FA9-MA03G-1	ACANT019-18	MK612500	<i>Barbus barbus</i>	Vienna	River Danube
FA9-MA04K-1	ACANT020-18	MK612499	<i>Barbus barbus</i>	Vienna	River Danube
FA9-MA07F-1	ACANT021-18	MK612498	<i>Barbus barbus</i>	Vienna	River Danube
FA9-MA08F-1	ACANT022-18	MK612497	<i>Barbus barbus</i>	Vienna	River Danube
FA9-MA09F-1	ACANT023-18	MK612523	<i>Barbus barbus</i>	Vienna	River Danube
FA9-NA01OH-1	ACANT024-18	MK612522	<i>Barbus barbus</i>	Vienna	River Danube
FA9-N7	ACANT046-18	MK612510	Cyprinidae	Vienna	River Danube
FA9-T2	ACANT049-18	MK612509	<i>Barbus barbus</i>	Vienna	River Danube
FA9-T7	ACANT047-18	MK612508	<i>Barbus barbus</i>	Vienna	River Danube

FA9-N6	ACANT048-18	MK612507	<i>Barbus barbus</i>	Vienna	River Danube
<i>Pomphorhynchus laevis</i>					
Fish34-1	ACANT037-18	MK612524	<i>Alburnoides bipunctatus</i>	Styria	River Mur
Fish34-2	ACANT038-18	MK612532	<i>Alburnoides bipunctatus</i>	Styria	River Mur
G1-1	ACANT039-18	MK612531	<i>Alburnoides bipunctatus</i>	Styria	River Sulm
G2-2	ACANT040-18	MK612530	<i>Alburnoides bipunctatus</i>	Styria	River Sulm
G3-1	ACANT041-18	MK612529	<i>Alburnoides bipunctatus</i>	Styria	River Sulm
G3-2	ACANT042-18	MK612528	<i>Alburnoides bipunctatus</i>	Styria	River Sulm
G3-3	ACANT043-18	MK612527	<i>Alburnoides bipunctatus</i>	Styria	River Sulm
G3-5	ACANT044-18	MK612526	<i>Alburnoides bipunctatus</i>	Styria	River Sulm
G4-1	ACANT045-18	MK612525	<i>Alburnoides bipunctatus</i>	Styria	River Sulm
<i>Echinorhynchus cinctulus</i>					
Fish26-2*	ACANT050-20	MT682920	<i>Zingel streber</i>	Styria	River Mur
Fish45-3*	ACANT051-20	MT682921	<i>Lota lota</i>	Styria	River Mur
Fish45-4*	ACANT052-20	MT682922	<i>Lota lota</i>	Styria	River Mur
Fish45-6*	ACANT053-20	MT682923	<i>Lota lota</i>	Styria	River Mur
Fish45-7*	ACANT054-20	MT682924	<i>Lota lota</i>	Styria	River Mur
BR21-1*	ACANT055-20	MT682925	<i>Cottus gobio</i>	Lower Austria	Lunz (brook)
KBO25-1*	ACANT056-20	MT682926	<i>Cottus gobio</i>	Lower Austria	Lunz (brook)
SR24-1*	ACANT057-20	MT682927	<i>Cottus gobio</i>	Lower Austria	Lunz (brook)
SR24-2*	ACANT058-20	MT682928	<i>Cottus gobio</i>	Lower Austria	Lunz (brook)
SR-12-1*	ACANT059-20	MT682929	<i>Cottus gobio</i>	Lower Austria	Lunz (brook)
YGL-16-1*	ACANT060-20	MT682930	<i>Cottus gobio</i>	Lower Austria	Lunz (brook)
<i>Acanthocephalus anguillae</i>					
AAL9-1A*	ACANT061-20	MT682931	<i>Anguilla anguilla</i>	Burgenland	Lake Neusiedl
AAL15-A*	ACANT062-20	MT682932	<i>Anguilla anguilla</i>	Burgenland	Lake Neusiedl
AAL20A*	ACANT063-20	MT682933	<i>Anguilla anguilla</i>	Burgenland	Lake Neusiedl
AAL21-3*	ACANT064-20	MT682934	<i>Anguilla anguilla</i>	Burgenland	Lake Neusiedl
<i>Acanthocephalus sp.</i>					
AAL23A*	ACANT065-20	MT682935	<i>Anguilla anguilla</i>	Burgenland	Lake Neusiedl
<i>Acanthocephalus lucii</i>					
BA2-3*	ACANT066-20	MT682936	<i>Perca fluviatilis</i>	Lower Austria	Waidhofen/T. (fish pond)
BA1-1*	ACANT067-20	MT682937	<i>Perca fluviatilis</i>	Lower Austria	Waidhofen/T. (fish pond)
A16022016*	ACANT068-20	MT682938	<i>Perca fluviatilis</i>	Lower Austria	Waidhofen/T. (fish pond)
A16022016-2A*	ACANT069-20	MT682939	<i>Perca fluviatilis</i>	Lower Austria	Waidhofen/T. (fish pond)
FI28-1*	ACANT070-20	MT682940	<i>Perca fluviatilis</i>	Lower Austria	Waidhofen/T. (fish pond)
BA2-4*	ACANT073-20	MT682943	<i>Perca fluviatilis</i>	Lower Austria	Waidhofen/T. (fish pond)
BA2-6*	ACANT074-20	MT682944	<i>Perca fluviatilis</i>	Lower Austria	Waidhofen/T. (fish pond)
BA2-5*	ACANT075-20	MT682945	<i>Perca fluviatilis</i>	Lower Austria	Waidhofen/T. (fish pond)
BA6-1*	ACANT076-20	MT682946	<i>Perca fluviatilis</i>	Lower Austria	Waidhofen/T. (fish pond)
BA13-1*	ACANT077-20	MT682947	<i>Perca fluviatilis</i>	Lower Austria	Waidhofen/T. (fish pond)
BA18-1*	ACANT078-20	MT682948	<i>Gymnocephalus cernua</i>	Lower Austria	Waidhofen/T. (fish pond)
FI16-1*	ACANT079-20	MT682949	<i>Perca fluviatilis</i>	Lower Austria	Waidhofen/T. (fish pond)
FI17-1*	ACANT080-20	MT682950	<i>Perca fluviatilis</i>	Lower Austria	Waidhofen/T. (fish pond)
FI17-2*	ACANT081-20	MT682951	<i>Perca fluviatilis</i>	Lower Austria	Waidhofen/T. (fish pond)
AAL-N19-1*	ACANT071-20	MT682941	<i>Anguilla anguilla</i>	Burgenland	Lake Neusiedl
AAL-N19-3*	ACANT072-20	MT682942	<i>Anguilla anguilla</i>	Burgenland	Lake Neusiedl

Table S2. List of morphological datasets based on confocal laser-scanning microscopy datasets

Echinorhynchus cinctulus

<https://phaidra.univie.ac.at/o:1091317>

<https://phaidra.univie.ac.at/o:1091318>

<https://phaidra.univie.ac.at/o:1091319>

<https://phaidra.univie.ac.at/o:1091320>

<https://phaidra.univie.ac.at/o:1091321>

<https://phaidra.univie.ac.at/o:1091323>

<https://phaidra.univie.ac.at/o:1091324>

<https://phaidra.univie.ac.at/o:1091325>

<https://phaidra.univie.ac.at/o:1091350>

<https://phaidra.univie.ac.at/o:1091352>

<https://phaidra.univie.ac.at/o:1091354>

Acanthocephalus anguillae

<https://phaidra.univie.ac.at/o:1091356>

<https://phaidra.univie.ac.at/o:1091357>

Acanthocephalus lucii

<https://phaidra.univie.ac.at/o:1091358>

<https://phaidra.univie.ac.at/o:1091359>
