

- Cichlidogyrus nshomboi* Muterezi Bukinga, Vanhove, Van Steenberge et Pariselle, 2012 from ***Boulengerochromis microlepis*** (Democratic Republic of the Congo)
- Cichlidogyrus nuniezi* Pariselle et Euzet, 1998 from *Heterotilapia buttkoferi*, ***H. cessiona*** (Ivory Coast)
- Cichlidogyrus ornatus* Pariselle et Euzet, 1996 from *Coptodon camerunensis*, *C. dageti*, ***C. zillii*** (Ivory Coast)
- Cichlidogyrus ouedraogoi* Pariselle et Euzet, 1996 from ***Coptodon coffea*** (Guinea), *C. guineensis*, *C. kottae*, *Pelmatolapia mariae*
- Cichlidogyrus paganoi* Pariselle et Euzet, 1997 from ***Sarotherodon occidentalis*** (Guinea)
- Cichlidogyrus papernastrema* Price, Peebles et Bamford, 1969 from *Coptodon rendalli*, *Oreochromis mweruensis*, ***Tilapia sparrmanii*** (South Africa)
- Cichlidogyrus philander* Douëllou, 1993 from ***Pseudocrenilabrus philander*** (Zimbabwe)
- Cichlidogyrus pouyaudi* Pariselle et Euzet, 1994 from *Tylochromis intermedius*, ***T. jentinki*** (Ivory Coast)
- Cichlidogyrus pseudoaspiralis* Rahmouni, Vanhove et Šimková, 2017 from ***Aulonocranus dewindti*** (Burundi)
- Cichlidogyrus quaestio* Douëllou, 1993 from ***Coptodon rendalli*** (Zimbabwe), *Sargochromis codringtonii*, *Serranochromis macrocephalus*, *Tilapia sparrmanii*
- Cichlidogyrus raeymaekersi* Pariselle et Vanhove, 2015 from ***Simochromis diagramma*** (Democratic Republic of the Congo)
- Cichlidogyrus rectangulus* Rahmouni, Vanhove et Šimková, 2017 from ***Ophthalmotilapia nasuta*** (Burundi)
- Cichlidogyrus reversati* Pariselle et Euzet, 2003 from ***Pelmatolapia cabrae*** (Republic of the Congo)
- Cichlidogyrus rognoni* Pariselle, Bilong Bilong et Euzet, 2003 from ***Oreochromis niloticus*** (Senegal)
- Cichlidogyrus sanjeani* Pariselle et Euzet, 1997 from ***Sarotherodon occidentalis*** (Guinea)
- Cichlidogyrus sanseoi* Pariselle et Euzet, 2004 from ***Hemichromis fasciatus*** (Ivory Coast)
- Cichlidogyrus schreyenbrichardorum* Pariselle et Vanhove, 2015 from ***Interochromis loocki*** (Zambia)
- Cichlidogyrus sclerosus* Paperna et Thurston, 1969 [syn. *Cichlidogyrus bangladeshi* Ferdousi et Chandra, 2002] from *Coptodon zillii*, *Haplochromis* sp., *Oreochromis leucostictus*, *O. mortimeri*, ***O. mossambicus*** (Uganda), *O. mweruensis*, *O. niloticus*, *O. spilurus*, *Sarotherodon galilaeus*, *Serranochromis macrocephalus*
- Cichlidogyrus sigmocirrus* Pariselle, Bitja Nyom et Bilong Bilong, 2014 from ***Tylochromis sudanensis*** (Cameroon)
- Cichlidogyrus slembroucki* Pariselle et Euzet, 1998 from ***Heterotilapia buttkoferi*** (Guinea), *Pelmatolapia mariae*

- Cichlidogyrus steenbergei* Gillardin, Vanhove, Pariselle, Huyse et Volckaert, 2012 from ***Limnotilapia dardennii*** (Zambia)
- Cichlidogyrus sturmbaueri* Vanhove, Volckaert et Pariselle, 2011 from *Ophthalmotilapia nasuta*, ***O. ventralis*** (Zambia)
- Cichlidogyrus testificatus* Dossou, 1982 from ***Pelmatolapia mariae*** (Benin)
- Cichlidogyrus teugelsi* Pariselle et Euzet, 2004 from ***Hemichromis fasciatus*** (Ivory Coast)
- Cichlidogyrus thurstonae* Ergens, 1981 [syns *Cichlidogyrus tiberianus* Paperna, 1960 (*partim*); *Cichlidogyrus gilli* Ferdousi et Chandra, 2002] from *Haplochromis longirostris*, *Oreochromis esculentus*, ***O. niloticus*** (Egypt), *O. variabilis*, *Sarotherodon galilaeus*
- Cichlidogyrus tiberianus* Paperna, 1960 from *Coptodon bakossiorum*, *C. coffea*, *C. dageti*, *C. guineensis*, *C. gutturosa*, *C. kottae*, *C. rendalli*, *C. walteri*, ***C. zillii***, *Oreochromis mweruensis*, *Pelmatolapia mariae*, *Tilapia sparrmanii*
- Cichlidogyrus tilapiae* Paperna, 1960 [syns *Cleidodiscus tilapiae* Price et Géry, 1967; *Cichlidogyrus tubicirrus minutus* Paperna et Thurston, 1969 (*partim*); *Cichlidogyrus tubicirrus* Paperna et Thurston, 1969 (*partim*); *Cichlidogyrus chandrai* Ferdousi et Chandra, 2002] from *Chromidotilapia guntheri*, *Coptodon camerunensis*, *C. guineensis*, *C. gutturosa*, *C. kottae*, *C. zillii*, *Haplochromis macrognathus*, *Hemichromis fasciatus*, *Oreochromis aureus*, *O. leucostictus*, *O. mortimeri*, *O. mossambicus*, *O. mweruensis*, *O. niloticus*, *O. spilurus*, *O. urolepis*, *O. variabilis*, *Pelmatolapia mariae*, ***Sarotherodon galilaeus***, *Tilapia busumana*
- Cichlidogyrus vandekerkhovei* Vanhove, Volckaert et Pariselle, 2011 from *Ophthalmotilapia boops*, *O. nasuta*, ***O. ventralis*** (Zambia)
- Cichlidogyrus vealli* Pariselle et Vanhove, 2015 from ***Interochromis loocki*** (Zambia)
- Cichlidogyrus vexus* Pariselle et Euzet, 1995 from ***Coptodon guineensis*** (Ivory Coast), *C. zillii*
- Cichlidogyrus yanni* Pariselle et Euzet, 1996 from *Coptodon camerunensis*, *C. dageti*, *C. guineensis*, *C. louka*, *C. walteri*, ***C. zillii*** (Guinea)
- Cichlidogyrus zambezensis* Douëllou, 1993 from *Oreochromis mortimeri*, *Sargochromis mellandi*, *Serranochromis angusticeps*, ***S. macrocephalus*** (Zimbabwe), *S. robustus*, *S. stappersi*, *S. thumbergi*
- Dactylogyrus* Diesing, 1850 [syn. *Neodactylogyrus* Price, 1938]
- Dactylogyrus afer* Price et Géry, 1968 from ***Labeobarbus batesii*** (Gabon)
- Dactylogyrus aferoides* Guégan et Lambert, 1990 from ***Labeobarbus bynni*** [syns *Barbus occidentalis*, *B. waldroni*] (Mali), *L. parawaldroni*, *L. petitjeani*
- Dactylogyrus afrobarbae* Paperna, 1968 from *Enteromius ablaves*, *E. sublineatus*, *E. trispilopleura* (Ghana; type host not indicated)
- Dactylogyrus afrochelatus* Paperna, 1973 from ***Enteromius paludinosus*** [syn. *Barbus amphigramma*] (Kenya)

- Dactylogyrus afrofluviatilis* Paperna, 1973 from **Barbus** sp. (Kenya), *Enteromius neglectus*, *E. perince*
- Dactylogyrus afrolongicornis* Paperna, 1973 from **Enteromius kerstenii** (Uganda), *E. perince*, *E. trimaculatus*
- Dactylogyrus afropsilovaginus* Paperna, 1973 from *Enteromius kerstenii*, **E. paludinosus** [syn. *Barbus amphigramma*] (Uganda), *E. perince*
- Dactylogyrus afroruahae* Paperna, 1973 from **Barbus** sp. (Tanzania)
- Dactylogyrus afrosclerovaginus* Paperna, 1973 from *Enteromius magdaleneae*, **E. neglectus** (Uganda), *E. paludinosus*, *E. perince*
- Dactylogyrus afrotoxopous* Paperna, 1973 from **Enteromius kerstenii** (Uganda)
- Dactylogyrus allolongionchus* Paperna, 1973 from **Enteromius perince** (Uganda), *E. trimaculatus*
- Dactylogyrus amieti* Birgi et Lambert, 1987 from **Enteromius camptacanthus** (Cameroon)
- Dactylogyrus archaeopenis* Guégan et Lambert, 1990 from **Labeobarbus parawaldroni** (Guinea), *L. petitjeani*, *L. sacratus*
- Dactylogyrus aspili* Birgi et Lambert, 1987 from **Enteromius aspilus** (Cameroon)
- Dactylogyrus atlasensis* El Gharbi, Birgi et Lambert, 1994 from **Luciobarbus pallaryi** (Morocco)
- Dactylogyrus barbus* Price et Géry, 1968 from **Barbus** sp. (*brichardi* aff.) (Gabon)
- Dactylogyrus batesii* Birgi et Euzet, 1983 from **Aphyosemion batesii** (Cameroon)
- Dactylogyrus benhoussai* Rahmouni, Řehulková et Šimková, 2017 from **Luciobarbus moulouyensis** (Morocco)
- Dactylogyrus biradius* Birgi et Lambert, 1987 from **Enteromius jae** (Cameroon)
- Dactylogyrus birgii* Timofeeva, Gerasev et Gibson, 1996 [syn. *Dactylogyrus simplex* Birgi et Lambert, 1987] from **Enteromius martorelli** (Cameroon)
- Dactylogyrus bopeleti* Birgi et Lambert, 1987 from **Enteromius martorelli** (Cameroon)
- Dactylogyrus borjensis* El Gharbi, Birgi et Lambert, 1994 from **Luciobarbus nasus** (Morocco)
- Dactylogyrus brachydiscus* Paperna, 1973 from **Labeo victorianus** (Kenya)
- Dactylogyrus brevicirrus* Paperna, 1973 from *Enteromius kerstenii*, *E. neglectus*, *E. perince*, *Labeo cylindricus*, *L. forskalii*, *L. parvus*, **L. victorianus** (Uganda), *Labeobarbus altianalis*, *Leptocypris niloticus*
- Dactylogyrus brevicornis* Paperna, 1973 from **Enteromius kerstenii** (Uganda)
- Dactylogyrus clani* Guégan et Lambert, 1990 from **Labeobarbus petitjeani** (Guinea)
- Dactylogyrus clavatovaginus* Paperna, 1973 from *Enteromius nyanzae*, **E. paludinosus** [syn. *Barbus amphigramma*] (Uganda)

- Dactylogyrus cyclocirrus* Paperna, 1973 from *Labeo coubie*, ***L. cylindricus*** (Tanzania), *L. senegalensis*, *L. victorianus*
- Dactylogyrus decaspirus* Guégan, Lambert et Euzet, 1988 [syns *Dactylogyrus senegalensis* Paperna, 1969 (*partim*); *Dactylogyrus* cf. *senegalensis* Paperna, 1979] from ***Labeo coubie*** (Ghana)
- Dactylogyrus dembae* Musilová, Řehulková et Gelnar, 2009 [syn. *Dactylogyrus* cf. *labeous* Paperna, 1979 (*partim*)] from ***Labeo coubie*** (Senegal)
- Dactylogyrus digitalis* Paperna, 1969 from ***Labeo coubie*** (Ghana)
- Dactylogyrus dominici* Mashego, 1983 from ***Enteromius paludinosus*** (South Africa)
- Dactylogyrus draaensis* El Gharbi, Birgi et Lambert, 1994 from ***Luciobarbus pallaryi*** (Morocco)
- Dactylogyrus enidae* Mashego, 1983 from ***Enteromius neefi*** (South Africa)
- Dactylogyrus falcilocus* Guégan, Lambert et Euzet, 1988 from ***Labeo coubie*** (Mali), *L. parvus*, *Labeobarbus wurtzi*
- Dactylogyrus falsiphallus* Rahmouni, Řehulková et Šimková, 2017 from ***Luciobarbus maghrebensis*** (Morocco)
- Dactylogyrus fimbriphallus* El Gharbi, Birgi et Lambert, 1994 from *Carasobarbus moulouyensis*, ***Luciobarbus callensis*** [syns *Barbus figuiensis*, *B. issenensis*, *B. massaensis*] (Morocco), *L. pallaryi* [syn. *Barbus lepineyi*]
- Dactylogyrus gabonensis* Price et Géry, 1968 from ***Barbus*** sp. (*occidentalis* aff.) (Gabon)
- Dactylogyrus guirensis* El Gharbi, Birgi et Lambert, 1994 from ***Luciobarbus pallaryi*** (Morocco)
- Dactylogyrus helicophallus* Paperna, 1973 from ***Labeo forskalii*** (Uganda), *L. victorianus*
- Dactylogyrus heteromorphus* El Gharbi, Birgi et Lambert, 1994 from ***Luciobarbus callensis*** (Tunisia)
- Dactylogyrus insolitus* Birgi et Lambert, 1987 from ***Enteromius martorelli*** (Cameroon)
- Dactylogyrus iwani* Crafford, Luus-Powell et Avenant-Oldewage, 2012 from ***Labeo capensis*** (South Africa), *L. umbratus*
- Dactylogyrus jaculus* Guégan, Lambert et Euzet, 1988 [syn. *Dactylogyrus* cf. *labeous* Paperna, 1979 (*partim*)] from ***Labeo coubie*** (Mali)
- Dactylogyrus jaei* Birgi et Lambert, 1987 from ***Enteromius jae*** (Cameroon)
- Dactylogyrus jubbstrema* Price, Korach et McPott, 1969 from ***Glossogobius giuris*** (South Africa)
- Dactylogyrus jucundus* Guégan et Lambert, 1991 from *Labeo parvus*, ***L. rouaneti*** (Guinea)
- Dactylogyrus kii* Birgi et Lambert, 1987 from ***Enteromius jae*** (Cameroon)
- Dactylogyrus ksibii* El Gharbi, Birgi et Lambert, 1994 from ***Luciobarbus callensis*** [syn. *Barbus ksibi*] (Morocco), *L. magniatlantis*, *L. setivimensis*

- Dactylogyrus ksibioides* El Gharbi, Birgi et Lambert, 1994 from *Carasobarbus moulouyensis*, ***Luciobarbus setivimensis*** (Morocco)
- Dactylogyrus kulindrii* El Gharbi, Birgi et Lambert, 1994 from *Carasobarbus fritschii*, *Labeobarbus reinii* (Morocco; type host not indicated)
- Dactylogyrus labeous* Paperna, 1969 from *Labeo coubie*, *L. senegalensis* (Ghana; type host not indicated)
- Dactylogyrus larindae* Crafford, Luus-Powell et Avenant-Oldewage, 2012 from *Labeo capensis*, ***L. umbratus*** (South Africa)
- Dactylogyrus leonis* Musilová, Řehulková et Gelnar, 2009 from ***Labeo coubie*** (Senegal)
- Dactylogyrus longionchus* Paperna, 1973 from ***Enteromius kerstenii*** (Uganda)
- Dactylogyrus longiphalloides* Guégan et Lambert, 1991 from ***Labeo alluaudi*** (Sierra Leone)
- Dactylogyrus longiphallus* Paperna, 1973 from *Enteromius kerstenii*, *Labeo forskalii*, *L. parvus*, ***L. victorianus*** (Kenya), *Labeobarbus altianalis*
- Dactylogyrus macrocleithrum* Price et Géry, 1968 from ***Barbus*** sp. (*holotaenia* aff.) (Gabon)
- Dactylogyrus maillardi* Birgi et Lambert, 1987 from ***Enteromius martorelli*** (Cameroon)
- Dactylogyrus marocanus* El Gharbi, Birgi et Lambert, 1994 from ***Carasobarbus fritschii*** [syn. *Barbus paytonii*] (Morocco), *C. harterti*, *Labeobarbus reinii*, *Luciobarbus callensis* [syn. *B. ksibi*], *L. nasus*, *L. setivimensis*
- Dactylogyrus mawli* Paperna, 1969 from ***Enteromius macrops*** (Ghana)
- Dactylogyrus mendehei* Birgi et Lambert, 1987 from ***Enteromius aspilus*** (Cameroon), *E. guirali*
- Dactylogyrus myersi* Price, McClellan, Druckenmiller et Jacobs, 1969 from *Enteromius perince*, ***E. trimaculatus*** (South Africa)
- Dactylogyrus nanocirrus* Paperna, 1973 from *Enteromius apleurogramma*, *E. neglectus*, *E. perince*, ***E. trispilos*** (Ghana), *E. sublineatus*
- Dactylogyrus nathaliae* Guégan, Lambert et Euzet, 1988 from ***Labeo*** sp. (Mali)
- Dactylogyrus nicolettae* Crafford, Luus-Powell et Avenant-Oldewage, 2012 from ***Labeo capensis*** (South Africa)
- Dactylogyrus njinei* Birgi et Lambert, 1987 from ***Enteromius camptacanthus*** (Cameroon)
- Dactylogyrus nyongensis* Birgi et Lambert, 1987 from *Enteromius aspilus*, *E. guirali* (Cameroon; type host not indicated)
- Dactylogyrus oligospirophallus* Paperna, 1973 [syn. *Dactylogyrus afrobarbae* Paperna, 1968 (*partim*)] from ***Labeo coubie*** (Ghana)
- Dactylogyrus omega* Guegan et Lambert, 1991 from *Labeo parvus*, ***L. rouaneti*** (Guinea)
- Dactylogyrus oumiensis* El Gharbi, Birgi et Lambert, 1994 from *Carasobarbus fritschii* [syn. *Barbus paytonii*], *C. harterti*, *Labeobarbus reinii* (Morocco; type host not indicated)

- Dactylogyrus papernai* Timofeeva, Gerasev et Gibson, 1996 [*D. magnum* Paperna, 1973 renamed] from ***Labeobarbus macrolepis*** (Tanzania)
- Dactylogyrus parawaldronii* Guégan et Lambert, 1990 from ***Labeobarbus parawaldroni*** (Guinea)
- Dactylogyrus parviphallus* Paperna, 1973 from *Enteromius apleurogramma*, *E. kerstenii* (Uganda; type host not indicated)
- Dactylogyrus petitjeani* Guégan et Lambert, 1990 from ***Labeobarbus petitjeani*** (Guinea)
- Dactylogyrus pienaari* Price, Korach et McPott, 1969 from ***Labeo rosae*** (South Africa)
- Dactylogyrus pokoase* Paperna, 1973 from ***Enteromius ablabe*** (Ghana)
- Dactylogyrus pseudanchoratus* Price et Géry, 1968 from ***Labeobarbus bynni*** [syns *Barbus occidentalis*, *B. waldroni*] (Gabon), *L. macrolepis*, *L. parawaldroni*, *L. petitjeani*, *L. sacratus*, *L. wurtzi*
- Dactylogyrus rastellus* Guégan, Lambert et Euzet, 1988 from ***Labeo senegalensis*** (Mali)
- Dactylogyrus reinii* El Gharbi, Birgi et Lambert, 1994 from ***Labeobarbus reinii*** (Morocco)
- Dactylogyrus retroversus* Guégan, Lambert et Euzet, 1988 from ***Labeo coubie*** (Mali)
- Dactylogyrus ruahae* Paperna, 1973 from ***Labeobarbus macrolepis*** (Tanzania), *L. parawaldroni*, *L. sacratus*, *L. wurtzi*
- Dactylogyrus rufijii* Paperna, 1973 from ***Labeobarbus macrolepis*** (Tanzania)
- Dactylogyrus sacrati* Guégan et Lambert, 1990 from ***Labeobarbus sacratus*** (Guinea)
- Dactylogyrus sahelensis* Guégan et Lambert, 1990 from ***Labeobarbus bynni*** [syns *Barbus occidentalis*, *B. waldroni*] (Mali), *L. petitjeani*
- Dactylogyrus scorpius* Rahmouni, Řehulková et Šimková, 2017 from ***Luciobarbus rifensis*** (Morocco)
- Dactylogyrus sematus* Guégan et Lambert, 1991 from ***Labeo rouaneti*** (Guinea)
- Dactylogyrus senegalensis* Paperna, 1969 from ***Labeo senegalensis*** (Ghana)
- Dactylogyrus spinicirrus* (Paperna et Thurston, 1968) [syn. *Neodactylogyrus spinicirrus* Paperna et Thurston, 1968] from *Enteromius nyanzae*, *E. radiatus*, *E. trimaculatus*, ***Labeobarbus altianalis*** (Uganda), *L. marequensis*, *L. somereni*
- Dactylogyrus teresae* Mashego, 1983 from ***Enteromius paludinosus*** (South Africa)
- Dactylogyrus titus* Guégan, Lambert et Euzet, 1988 from ***Labeo coubie*** (Mali)
- Dactylogyrus tubarius* Guégan, Lambert et Euzet, 1988 from ***Labeo senegalensis*** (Mali)
- Dactylogyrus tunisiensis* El Gharbi, Birgi et Lambert, 1994 from ***Luciobarbus callensis*** (Tunisia)
- Dactylogyrus valeti* Birgi et Lambert, 1987 from ***Enteromius camptacanthus*** (Cameroon)
- Dactylogyrus varicorhini* Bychowsky, 1958 from ***Labeobarbus kimberleyensis*** (South Africa)

- Dactylogyrus varius* Rahmouni, Řehulková et Šimková, 2017 from ***Luciobarbus maghrebensis*** (Morocco)
- Dactylogyrus volutus* El Gharbi, Birgi et Lambert, 1994 from ***Carasobarbus fritschii*** (Morocco)
- Dactylogyrus wurtzii* Guégan et Lambert, 1990 from ***Labeobarbus wurtzi*** (Guinea)
- Dactylogyrus yassensis* Musilová, Řehulková et Gelnar, 2009 from ***Labeo coubie*** (Senegal) [Fig. 4.4.9A]
- Dactylogyrus zatensis* El Gharbi, Birgi et Lambert, 1994 from ***Carasobarbus fritschii*** (Morocco)
- Dogielius* Bychowsky, 1936
- Dogielius anthocolpos* Guégan, Lambert et Euzet, 1989 from ***Labeo coubie*** (Mali) [Fig. 4.4.8B]
- Dogielius clavipenis* Guégan, Lambert et Euzet, 1989 from ***Labeo coubie*** (Mali)
- Dogielius complicitus* Guégan, Lambert et Euzet, 1989 from ***Labeo coubie*** (Mali)
- Dogielius djolibaensis* Guégan et Lambert, 1990 from ***Labeobarbus bynni*** [syns *Barbus occidentalis*, *B. waldroni*] (Mali), *L. petitjeani*
- Dogielius dublicornis* Paperna, 1973 from ***Labeo cylindricus*** (Tanzania)
- Dogielius flagellatus* Guégan, Lambert et Euzet, 1989 from ***Labeo coubie*** (Mali)
- Dogielius flosculus* Guégan, Lambert et Euzet, 1989 from ***Labeo senegalensis*** (Mali)
- Dogielius grandijugus* Guégan, Lambert et Euzet, 1989 from ***Labeo*** sp. (Mali)
- Dogielius grandiphallus* Paperna, 1973 from ***Labeobarbus macrolepis*** (Tanzania)
- Dogielius harpagatus* Guégan, Lambert et Euzet, 1989 from ***Labeo coubie*** (Mali)
- Dogielius intorquens* Crafford, Luus-Powell et Avenant-Oldewage, 2012 from *Enteromius paludinosus*, *Labeo capensis*, ***L. umbratus*** (South Africa)
- Dogielius junorstrema* Price et Yurkiewicz, 1968 from ***Labeo ruddi*** (Zimbabwe)
- Dogielius kabaensis* Guégan et Lambert, 1991 from *Labeo alluaudi*, ***L. parvus*** (Guinea)
- Dogielius martorellii* Birgi et Lambert, 1987 from ***Enteromius martorelli*** (Cameroon)
- Dogielius njinei* Birgi et Lambert, 1987 from ***Enteromius camptacanthus*** (Cameroon)
- Dogielius parvus* Guégan, Lambert et Euzet, 1989 from ***Labeo parvus*** (Mali)
- Dogielius pedaloe* Guégan et Lambert, 1990 from ***Labeobarbus parawaldroni*** (Guinea), *L. wurtzi*
- Dogielius phrygius* Guégan et Lambert, 1990 from ***Labeobarbus sacratus*** (Guinea)
- Dogielius rosumplicatus* Guégan et Lambert, 1991 from *Labeo parvus*, ***L. rouaneti*** (Guinea)
- Dogielius tropicus* Paperna, 1969 from *Labeo coubie*, *L. senegalensis* (Ghana; type host not indicated)

- Dogielius vexillus* Guégan et Lambert, 1990 from ***Labeobarbus wurtzi*** (Ivory Coast)
- Enterogyrus* Paperna, 1963
- Enterogyrus amieti* Bilong Bilong, Euzet et Birgi, 1996 from ***Sarotherodon galilaeus*** (Cameroon) [Fig. 4.4.7A]
- Enterogyrus barombiensis* Bilong Bilong, Birgi et Euzet, 1991 from *Konia eisentrauti*, ***Pungu maclareni*** (Cameroon), *Stomatepia pindu*
- Enterogyrus cichlidarum*** Paperna, 1963 [syn. *Enterogyrus niloticus* Eid et Negm, 1987] from *Coptodon nyongana*, ***C. zillii***, *Oreochromis mossambicus*, *O. niloticus*, *Pseudocrenilabrus philander*, *Sarotherodon galilaeus*
- Enterogyrus coronatus* Pariselle, Lambert et Euzet, 1991 from *Coptodon dageti*, ***C. guineensis*** (Ivory Coast), *Pseudocrenilabrus philander*
- Enterogyrus crassus* Bilong Bilong, Euzet et Birgi, 1996 from ***Coptodon nyongana*** (Cameroon)
- Enterogyrus foratus* Pariselle, Lambert et Euzet, 1991 from ***Sarotherodon melanotheron*** (Senegal or Ivory Coast; type locality not indicated)
- Enterogyrus malMBERGI* Bilong Bilong, 1988 from ***Oreochromis niloticus*** (Cameroon)
- Enterogyrus melenensis* Bilong Bilong, Birgi et Lambert, 1989 from ***Hemichromis fasciatus*** (Cameroon)
- Eutrianchoratus* Paperna, 1969
- Eutrianchoratus chibami* Bilong Bilong, Euzet et Birgi, 1994 from ***Parachanna obscura*** (Cameroon)
- Eutrianchoratus imbachi* Dossou et Euzet, 1984 from ***Parachanna obscura*** (Benin)
- Eutrianchoratus magnus* Paperna, 1969 from ***Parachanna obscura*** (Ghana)
- Eutrianchoratus malleus* Bilong Bilong, Euzet et Birgi, 1994 from ***Parachanna obscura*** (Cameroon) [Fig. 4.4.10B]
- Eutrianchoratus minutus* Paperna, 1969 from ***Parachanna obscura*** (Ghana)
- Heteronchocleidus* Bychowsky, 1957
- Heteronchocleidus adjanohouni* Euzet et Dossou, 1975 from *Ctenopoma kingsleyae*, *C. petherici* (Benin; type host not indicated) [Fig. 4.4.10A]
- Heteronchocleidus ctenopomae* Paperna, 1969 from ***Ctenopoma kingsleyae*** (Ghana), *C. petherici*
- Heteronchocleidus niloticus* Paperna, 1973 from ***Ctenopoma muriei*** (Uganda)
- Heteronchocleidus ouemensis* Euzet et Dossou, 1975 from *Ctenopoma kingsleyae*, *C. petherici* (Benin; type host not indicated)
- Heteronchocleidus tuzetae* Euzet et Dossou, 1975 from *Ctenopoma kingsleyae*, *C. petherici* (Benin; type host not indicated)

- Heterotesia* Paperna, 1969
- Heterotesia voltae*** Paperna, 1969 from ***Heterotis niloticus*** (Ghana) [Fig. 4.4.12B]
- Insulacleidus* Rakotofiringa et Euzet, 1983
- Insulacleidus paratilapiae*** Rakotofiringa et Euzet, 1983 from ***Paratilapia polleni*** (Madagascar) [Fig. 4.4.19A]
- Insulacleidus paretropi* Rakotofiringa et Euzet, 1983 from ***Paretroplus polyactis*** (Madagascar)
- Insulacleidus ptychochromidis* Rakotofiringa et Euzet, 1983 from ***Ptychochromis oligacanthus*** (Madagascar)
- Nanotrema* Paperna, 1969
- Nanotrema citharini*** Paperna, 1969 from ***Citharinus citharus*** (Ghana) [Fig. 4.4.8A]
- Nanotrema niokoloensis* Musilová, Řehulková et Gelnar, 2011 from ***Citharinus citharus*** (Senegal)
- Onchobdella* Paperna, 1968
- Onchobdella aframae* Paperna, 1968 from ***Hemichromis fasciatus*** (Ghana)
- Onchobdella bopeleti* Bilong Bilong et Euzet, 1995 from ***Hemichromis fasciatus*** (Cameroon or Mali; type locality not indicated)
- Onchobdella krachii* Paperna, 1968 from ***Chromidotilapia guntheri*** (Ghana)
- Onchobdella melissa* Pariselle et Euzet, 1995 from ***Pelmatochromis buettikoferi*** (Guinea)
- Onchobdella pterigyalis* Paperna, 1968 from ***Hemichromis bimaculatus*** (Ghana)
- Onchobdella spirocirra* Paperna, 1968 from ***Hemichromis bimaculatus*** (Ghana)
- Onchobdella sylverai* Pariselle et Euzet, 1995 from ***Pelmatochromis buettikoferi*** (Guinea)
- Onchobdella voltensis*** Paperna, 1968 from *Hemichromis bimaculatus*, ***H. fasciatus*** (Ghana) [Fig. 4.4.11B]
- Paraquadriacanthus* Ergens, 1988 [syn. *Quadriacanthoides* Kritsky et Kulo, 1988]
- Paraquadriacanthus nasalis*** Ergens, 1988 [syn. *Quadriacanthoides andersoni* Kritsky et Kulo, 1988] from ***Clarias gariepinus*** [syn. *Clarias lazera*] (Egypt) [Fig. 4.4.14B]
- Protoancylodiscoides* Paperna, 1969
- Protoancylodiscoides auratum* Bassock Bayiha, Nack et Pariselle, 2016 from ***Chrysichthys auratus*** (Cameroon)
- Protoancylodiscoides chrysichthes*** Paperna, 1969 from *Chrysichthys auratus*, ***C. nigrodigitatus*** (Togo)
- Protoancylodiscoides combesi* Bassock Bayiha, Nack et Pariselle, 2016 from ***Chrysichthys auratus*** (Cameroon), *C. longidorsalis*, *C. nigrodigitatus*
- Protoancylodiscoides katii* N'Douba et Lambert, 1999 from ***Malapterurus electricus*** (Ivory Coast)

- Protoancylodiscoides malapteruri* Bilong Bilong, Birgi et Le Brun, 1997 from ***Malapterurus electricus*** (Cameroon)
- Protoancylodiscoides mansourensis* El-Naggar, 1987 from ***Chrysichthys auratus*** (Egypt) [Fig. 4.4.13]
- Protoancylodiscoides sanagaensis* Bassock Bayiha, Nack et Pariselle, 2017 from *Chrysichthys longidorsalis*, ***C. nigrodigitatus*** (Cameroon)
- Protoancylodiscoides spirovagina* Bassock Bayiha, Nack et Pariselle, 2017 from ***Chrysichthys nigrodigitatus*** (Cameroon)
- Protoancylodiscoides valentini* Bassock Bayiha, Nack et Pariselle, 2017 from *Chrysichthys longidorsalis*, ***C. nigrodigitatus*** (Cameroon)
- Quadriacanthus* Paperna, 1961 [syn. *Anacornuatus* Dubey, Gupta et Agarwal, 1992]
- Quadriacanthus aegypticus* El-Naggar et Serag, 1986 [syns *Anacornuatus aegypticus* (El-Naggar et Serag, 1986) Dubey, Gupta et Agarwal, 1992; *Quadriacanthus clariadis* Paperna, 1961 (*partim*)] from ***Clarias gariepinus*** [syn. *Clarias lazera*] (Egypt)
- Quadriacanthus agnebiensis* N'Douba, Lambert et Euzet, 1999 from ***Heterobranchus isoferus*** (Ivory Coast)
- Quadriacanthus allobyehowskiella* Paperna, 1979 [syns *Quadriacanthus clariadis allobyehowskiella* Paperna, 1979; *Quadriacanthus kearni* El-Naggar et Serag, 1985] from ***Clarias gariepinus*** [syn. *Clarias lazera*] (Uganda)
- Quadriacanthus anaspidoglanii* Akoumba, Pariselle et Tombi, 2017 from ***Notoglanidium macrostoma*** (Cameroon)
- Quadriacanthus ashuri* Kritsky et Kulo, 1988 from ***Clarias gariepinus*** [syn. *Clarias lazera*] (Egypt)
- Quadriacanthus ayameensis* N'Douba, Lambert et Euzet, 1999 from ***Heterobranchus isoferus*** (Ivory Coast)
- Quadriacanthus bagrae* Paperna, 1979 [syn. *Quadriacanthus clariadis bagrae* Paperna, 1979] from *Bagrus bajad*, ***B. docmak*** (Uganda), *B. orientalis*, *Clarias gariepinus* [syn. *Clarias lazera*]
- Quadriacanthus clariadis*** Paperna, 1961 [syns *Quadriacanthus clariadis clariadis* Paperna, 1979; *Quadriacanthus bagrae* Paperna, 1979 (*partim*)] from ***Clarias gariepinus*** [syn. *Clarias lazera*] [Fig. 4.4.12A]
- Quadriacanthus dageti* Birgi, 1988 from ***Clarias jaensis*** (Cameroon)
- Quadriacanthus eboreus* N'Douba et Lambert, 2001 from ***Clarias ebriensis*** (Ivory Coast)
- Quadriacanthus euzeti* Nack, Pariselle et Bilong Bilong, 2016 from ***Papyrocranus afer*** (Cameroon)
- Quadriacanthus fornicatus* Francová et Řehulková, 2017 from ***Clarias gariepinus*** (Sudan)
- Quadriacanthus gourenei* N'Douba, Lambert et Euzet, 1999 from ***Heterobranchus isoferus*** (Ivory Coast)

- Quadriacanthus ivoiriensis* N'Douba et Lambert, 2001 from ***Clarias ebriensis*** (Ivory Coast)
- Quadriacanthus levequei* Birgi, 1988 from ***Clarias pachynema*** (Cameroon)
- Quadriacanthus longifilisi* N'Douba, Lambert et Euzet, 1999 from ***Heterobranchus longifilis*** (Ivory Coast)
- Quadriacanthus macrocirrus* N'Douba, Lambert et Euzet, 1999 from ***Heterobranchus isopterus*** (Ivory Coast)
- Quadriacanthus macruncus* Bahanak, Nack et Pariselle, 2016 from ***Clarias submarginatus*** (Cameroon)
- Quadriacanthus mandibulatus* Francová et Řehulková, 2017 from ***Heterobranchus bidorsalis*** (Sudan)
- Quadriacanthus ndoubai* Bahanak, Pariselle et Bilong Bilong, 2017 from ***Heterobranchus longifilis*** (Cameroon)
- Quadriacanthus numidus* Kritsky et Kulo, 1988 from ***Clarias gariepinus*** [syn. *Clarias lazera*] (Egypt)
- Quadriacanthus nyongensis* Birgi, 1988 from *Clarias jaensis*, *C. pachynema* (Cameroon; type host not indicated)
- Quadriacanthus ossaensis* Bahanak, Nack et Pariselle, 2016 from ***Clarias submarginatus*** (Cameroon)
- Quadriacanthus papernai* Kritsky et Kulo, 1988 from ***Clarias gariepinus*** [syn. *Clarias lazera*] (Egypt)
- Quadriacanthus pravus* Francová et Řehulková, 2017 from ***Clarias gariepinus*** (Sudan)
- Quadriacanthus simplex* N'Douba, Lambert et Euzet, 1999 from ***Heterobranchus isopterus*** (Ivory Coast)
- Quadriacanthus submarginati* Bahanak, Nack et Pariselle, 2016 from ***Clarias submarginatus*** (Cameroon)
- Quadriacanthus teugelsi* Birgi, 1988 from *Clarias jaensis*, *C. pachynema* (Cameroon; type host not indicated)
- Quadriacanthus thysi* N'Douba, Lambert et Euzet, 1999 from ***Heterobranchus longifilis*** (Ivory Coast)
- Quadriacanthus tilapiae* Paperna, 1973 from ***Oreochromis esculentus*** (Uganda)
- Quadriacanthus tricorniculai* Bahanak, Pariselle et Bilong Bilong, 2017 from ***Heterobranchus longifilis*** (Cameroon)
- Quadriacanthus triunguisi* Bahanak, Pariselle et Bilong Bilong, 2017 from ***Heterobranchus longifilis*** (Cameroon)
- Quadriacanthus voltaensis* Paperna, 1965 from ***Clarias gariepinus*** [syn. *Clarias lazera*] (Ghana), *C. camerunensis* [syn. *C. walkeri*]
- Quadriacanthus zuheiri* Francová et Řehulková, 2017 from ***Clarias gariepinus*** (Sudan)

- Schilbetrema* Paperna et Thurston, 1968
- Schilbetrema acornis* Paperna et Thurston, 1968 from ***Schilbe intermedius*** [syn. *Schilbe mystus*] (Uganda)
- Schilbetrema aegyptica* El-Naggar, 1985 from ***Schilbe intermedius*** [syn. *Schilbe mystus*] (Egypt)
- Schilbetrema biclavula* N'Douba, Pariselle, Thys van den Audenaerde et Euzet, 1997 from ***Schilbe mandibularis*** (Ivory Coast)
- Schilbetrema bicornis* Paperna, 1969 – *species inquirenda* (Kritsky and Kulo 1992) from ***Parailia pellucida*** (Ghana)
- Schilbetrema calamocleithrum* Kritsky et Kulo, 1992 from ***Schilbe intermedius*** (Togo)
- Schilbetrema dissimilis* N'Douba, Pariselle, Thys van den Audenaerde et Euzet, 1997 from ***Schilbe mandibularis*** (Ivory Coast)
- Schilbetrema eutropii* Paperna, 1969 [syn. *Schilbetrema quadricornis eutropii* Paperna, 1969] from ***Schilbe mystus*** [syn. *Eutropius niloticus*] (Ghana)
- Schilbetrema hexacornis* Paperna, 1969 from ***Schilbe mystus*** [syn. *Eutropius niloticus*] (Ghana) [Fig. 4.4.17B]
- Schilbetrema quadricornis*** Paperna et Thurston, 1968 [syn. *Schilbetrema quadricornis schilbae* Paperna, 1969] from ***Schilbe intermedius*** [syn. *Schilbe mystus*] (Uganda)
- Schilbetrema spirocirra* Paperna, 1969 from ***Schilbe mystus*** [syn. *Eutropius niloticus*] (Ghana)
- Schilbetrema torula* Kritsky et Kulo, 1992 from ***Schilbe mystus*** (Togo)
- Schilbetrema tricera* Paperna, 1973 from ***Schilbe*** sp. (Tanzania)
- Schilbetrema undinula* Kritsky et Kulo, 1992 from ***Schilbe intermedius*** (Togo)
- Schilbetrema vacillans* Kritsky et Kulo, 1992 from ***Schilbe intermedius*** (Togo)
- Schilbetrematoides* Kritsky et Kulo, 1992
- Schilbetrematoides manizani* N'Douba, Lambert, Pariselle et Euzet, 2000 from *Schilbe intermedius* (new host record), ***S. mandibularis*** (Ivory Coast) [Fig. 4.4.9B]
- Schilbetrematoides pseudodactylogyrus*** Kritsky et Kulo, 1992 from ***Schilbe intermedius*** (Togo)
- Scutogyrus* Pariselle et Euzet, 1995
- Scutogyrus bailloni* Pariselle et Euzet, 1995 from ***Sarotherodon galilaeus*** (Niger)
- Scutogyrus chikhii* Pariselle et Euzet, 1995 from ***Oreochromis mossambicus*** (Republic of the Congo)
- Scutogyrus ecoutini* Pariselle et Euzet, 1995 from ***Sarotherodon occidentalis*** (Guinea)
- Scutogyrus gravivaginus* (Paperna et Thurston, 1969) [syns *Cichlidogyrus longicornis gravivaginus* Paperna et Thurston, 1969; *Cichlidogyrus gravivaginus* Paperna et

- Thurston, 1969 of Douëllou (1993)] from **Oreochromis leucostictus** (Uganda), *O. mortimeri*, *O. mweruensis*, *O. tanganicae*, *O. variabilis*
- Scutogyrus longicornis* (Paperna et Thurston, 1969) [syns *Cichlidogyrus longicornis longicornis* Paperna et Thurston, 1969; *Cichlidogyrus longicornis* of Douëllou (1993); *Actinocleidus muelleri* Ferdousi et Chandra, 2002] from *Coptodon zillii*, *Oreochromis aureus*, *O. mortimeri*, *O. mossambicus*, *O. niloticus*, ***Sarotherodon galilaeus*** (Ghana)
- Scutogyrus minus*** (Dossou, 1982) [syns *Cichlidogyrus longicornis minus* Dossou, 1982; *Cichlidogyrus minus* of Pariselle & Euzet, 1995] from *Oreochromis niloticus*, ***Sarotherodon melanotheron*** (Benin) [Fig. 4.4.15A]
- Scutogyrus vanhovei* Pariselle, Bitja Nyom et Bilong Bilong, 2013 from ***Pelmatolapia mariae*** (Cameroon)
- Synodontella* Dossou et Euzet, 1993
- Synodontella apertipenis* Mbondo, Nack et Pariselle, 2017 from ***Synodontis rebeli*** (Cameroon)
- Synodontella arcopenis* Dossou et Euzet, 1993 from ***Synodontis sorex*** (Benin or Mali; type locality not indicated)
- Synodontella davidi* Dossou et Euzet, 1993 from ***Synodontis membranaceus*** (Mali)
- Synodontella melanoptera* Dossou et Euzet, 1993 from ***Synodontis melanopterus*** (Benin), *S. obesus*, *S. rebeli* [Fig. 4.4.18A]
- Synodontella sanagaensis* Mbondo, Nack et Pariselle, 2017 from ***Synodontis rebeli*** (Cameroon)
- Synodontella synodontii*** (Paperna et Thurston, 1968) [syns *Ancyrocephalus synodontii* Paperna et Thurston, 1968; *Schilbetrema synodontii* (Paperna et Thurston, 1968)] from *Synodontis membranaceus*, ***S. victoriae*** (Uganda), *S. zambezensis*
- Synodontella zambezensis* Douëllou et Chishawa, 1995 from ***Synodontis zambezensis*** (Zimbabwe)
- Urogyrus* Bilong Bilong, Birgi et Euzet, 1994
- Urogyrus cichlidarum*** Bilong Bilong, Birgi et Euzet, 1994 from ***Benitochromis batesii*** (Cameroon), *Parananochromis caudifasciatus*, *Pungu maclareni*, *Stomatepia pindu*, *Tilapia* sp. [Fig. 4.4.7B]

DIPLECTANIDAE Monticelli, 1903

Diplectanum Diesing, 1858

- Diplectanum lacustre*** Thurston et Paperna, 1969 – *incertae sedis* (Domingues and Boeger 2008) from ***Lates niloticus*** [syn. *Lates albertianus*] (Ghana) [Fig. 4.4.6B]

GYRODACTYLIDAE van Beneden et Hesse, 1863

Afrogyrodactylus Paperna, 1968

- Afrogyrodactylus ardae* Přikrylová, Smit et Gelnar 2017 from ***Rhabdalestes septentrionalis*** (Senegal)
- Afrogyrodactylus characinis*** Paperna, 1968 from ***Micralestes*** sp. (Ghana)
- Afrogyrodactylus girgifae* Přikrylová et Luus-Powell, 2016 from ***Brycinus nurse*** (Sudan)
- Afrogyrodactylus kingi* Přikrylová et Luus-Powell, 2014 from ***Micralestes acutidens*** (South Africa) [Fig. 4.4.21B]
- Citharodactylus* Přikrylová, Shinn et Paladini, 2017
- Citharodactylus gagei*** Přikrylová, Shinn et Paladini, 2017 from ***Citharinus citharus*** (Kenya) [Fig. 4.4.22B]
- Diplogyrodactylus* Přikrylová, Matějusová, Musilová, Gelnar et Harris, 2009
- Diplogyrodactylus martini*** Přikrylová, Matějusová, Musilová, Gelnar et Harris, 2009 from ***Polypterus senegalus*** (Senegal) [Fig. 4.4.20A]
- Gyrodactylus* von Nordmann, 1832 [Fig. 4.4.22A]
- Gyrodactylus alberti* Paperna, 1973 from ***Clarias gariepinus*** (Uganda)
- Gyrodactylus alekosi* Přikrylová, Blažek et Vanhove, 2012 from ***Clarias gariepinus*** (Mozambique)
- Gyrodactylus amphiliusi* Paperna, 1973 from ***Amphilius atesuensis*** (Ghana)
- Gyrodactylus anabanti* Paperna, 1973 from ***Ctenopoma muriei*** (Uganda)
- Gyrodactylus camerunensis* Nack, Bilong Bilong et Euzet, 2005 from ***Clarias camerunensis*** (Cameroon)
- Gyrodactylus chitandiri* Zahradníčková, Barson, Luus-Powell et Přikrylová, 2016 from ***Coptodon rendalli*** (Zimbabwe), *Pseudocrenilabrus philander*
- Gyrodactylus cichlidarum* Paperna, 1968 from *Coptodon guineensis*, *C. zillii*, *Hemichromis bimaculatus*, *H. fasciatus*, ***Sarotherodon galilaeus*** (Ghana), *S. melanotheron*
- Gyrodactylus clarii* Paperna, 1973 from ***Clarias gariepinus*** (Uganda)
- Gyrodactylus ctenopomi* Paperna, 1973 from ***Ctenopoma muriei*** (Uganda)
- Gyrodactylus cyprinodonti* Paperna, 1968 from ***Epiplatys*** sp. (Ghana)
- Gyrodactylus cytophagus* Paperna, 1968 from ***Poropanchax normani*** (Ghana)
- Gyrodactylus ergensi* Přikrylová, Matějusová, Musilová et Gelnar, 2012 from ***Sarotherodon galilaeus*** (Senegal), *Oreochromis niloticus*
- Gyrodactylus gelnari* Přikrylová, Blažek et Vanhove, 2012 from ***Clarias anguillaris*** (Senegal), *C. gariepinus*
- Gyrodactylus groschafti* Ergens, 1973 from ***Clarias gariepinus*** (Egypt)
- Gyrodactylus haplochromi* Paperna, 1973 from ***Haplochromis elegans*** (Uganda)
- Gyrodactylus hildae* García-Vásquez, Hansen, Christison, Bronn et Shinn, 2011 from ***Oreochromis niloticus*** (Ethiopia)

- Gyrodactylus ivindoensis* Price et Géry, 1968 from ***Enteromius holotaenia*** (Gabon)
- Gyrodactylus kyogae* Paperna, 1973 from ***Enteromius perince*** (Uganda)
- Gyrodactylus malalai* Přikrylová, Blažek et Gelnar, 2012 from *Coptodon zillii*, ***Oreochromis niloticus*** (Kenya)
- Gyrodactylus micralestes* Paperna, 1968 from ***Micralestes*** sp. (Ghana)
- Gyrodactylus nigritae* Přikrylová, Blažek et Vanhove, 2012 from ***Synodontis nigrita*** (Senegal)
- Gyrodactylus nyanzae* Paperna, 1973 from *Coptodon rendalli*, *Oreochromis mweruensis*, *O. niloticus*, *O. niloticus* x *mweruensis*, ***O. variabilis*** (Uganda)
- Gyrodactylus nyongensis* Nack, Bilong Bilong et Euzet, 2005 from ***Clarias camerunensis*** (Cameroon)
- Gyrodactylus occupatus* Zahradníčková, Barson, Luus-Powell et Přikrylová, 2016 from ***Oreochromis niloticus*** (Zimbabwe), *Pharyngochromis acuticeps*, *Pseudocrenilabrus philander*, *Tilapia* sp.
- Gyrodactylus parisellei* Zahradníčková, Barson, Luus-Powell et Přikrylová, 2016 from *Oreochromis niloticus*, ***Pseudocrenilabrus philander*** (Zimbabwe), *Tilapia* sp.
- Gyrodactylus rysavyi* Ergens, 1973 from *Clarias anguillaris*, ***C. gariepinus*** (Egypt)
- Gyrodactylus sturmbaueri* Vanhove, Snoeks, Volckaert et Huyse, 2011 from *Pseudocrenilabrus philander*, ***Simochromis diagramma*** (Zambia)
- Gyrodactylus synodonti* Přikrylová, Blažek et Vanhove, 2012 from ***Synodontis nigrita*** (Senegal)
- Gyrodactylus thlapi* Christison, Shinn et Van As, 2005 from ***Pseudocrenilabrus philander*** (Botswana)
- Gyrodactylus thysi* Vanhove, Snoeks, Volckaert et Huyse, 2011 from ***Simochromis diagramma*** (Zambia)
- Gyrodactylus tranvaalensis* Prudhoe et Hussey, 1977 from *Clarias anguillaris*, ***C. gariepinus*** (South Africa)
- Gyrodactylus turkanaensis* Přikrylová, Blažek et Vanhove, 2012 from ***Clarias gariepinus*** (Kenya)
- Gyrodactylus ulinganisus* García-Vásquez, Hansen, Christison, Bronn et Shinn, 2011 from ***Oreochromis mossambicus*** (South Africa)
- Gyrodactylus yacatli* García-Vásquez, Hansen, Christison, Bronn et Shinn, 2011 from ***Oreochromis niloticus***, *Pseudocrenilabrus philander*
- Gyrodactylus zimbae* Vanhove, Snoeks, Volckaert et Huyse, 2011 from *Ctenochromis horei*, ***Simochromis diagramma*** (Zambia)
- Macrogyrodactylus* Malmberg, 1957
- Macrogyrodactylus anabanti* Paperna, 1973 from ***Ctenopoma muriei*** (Uganda)
- Macrogyrodactylus clarii* Gussev, 1961 from *Clarias gariepinus*, ***Clarias*** sp. (Ethiopia)

- Macrogyrodactylus congolensis* (Prudhoe, 1957) [syn. *Neogyrodactylus congolensis* Prudhoe, 1957] from *Clarias anguillaris*, **C. gariepinus** (Democratic Republic of the Congo) [Fig. 4.4.20B]
- Macrogyrodactylus ctenopomi* Paperna, 1973 from **Ctenopoma muriei** (Uganda)
- Macrogyrodactylus heterobranchii* N'Douba et Lambert, 1999 from *Clarias anguillaris*, **Heterobranchus longifilis** (Ivory Coast)
- Macrogyrodactylus karibae* Douëllou et Chishawa, 1995 from **Clarias gariepinus** (Zimbabwe)
- Macrogyrodactylus latesi* Paperna, 1969 from **Lates niloticus** (Ghana)
- Macrogyrodactylus polypteri** Malmberg, 1957 from **Polypterus senegalus** (Gambia)
- Macrogyrodactylus simetiensis* Přikrylová et Gelnar, 2008 from **Polypterus senegalus** (Senegal)
- Mormyrogyrodactylus* Luus-Powell, Mashego et Khalil, 2003
- Mormyrogyrodactylus gemini** Luus-Powell, Mashego et Khalil, 2003 from **Marcusenius macrolepidotus** (South Africa) [Fig. 4.4.21A]

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Chapter 4.5.

TREMATODA

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Flukes (Trematoda) – basic characteristics, life cycles, classification and principal diagnostic features

- parasitic flatworms (Platyhelminthes: Neodermata)
- almost 20,000 species classified in 2 subclasses
- subclass Digenea with 2 orders, 25 superfamilies and 148 families
- obligate parasites, almost exclusively endoparasites
- in the digestive system and other organs
- in all groups of vertebrates, with the highest number of species in bony fishes; exceptionally, adults in invertebrates
- body dorsoventrally flattened in most species
- usually with two muscular suckers: the oral sucker at the anterior end of the body and the ventral one (acetabulum) in the mid-region (close to the posterior extremity of the body in Paramphistomatoidea)
- digestive tract well-developed
- body surface covered with tegument (neodermis), sometimes with spines
- all African species in fishes hermaphroditic
- except for some aspidogastreans, life cycles indirect (1-3 intermediate hosts)
- first intermediate hosts molluscs, especially gastropods
- wide spectrum of second intermediate hosts, e.g., molluscs, insects, oligochaetes, fishes
- some species, especially larvae (e.g., metacercariae of the Diplostomidae and Clinostomidae), can be pathogenic for fish hosts
- causative agents of human fish-borne diseases (small liver and intestinal flukes) – not common in Africa

The life cycle of trematodes is complex with both free-living and parasitic stages and involves several hosts (Fig. 4.5.1 A, B). Adults produce eggs that pass in the faeces of the host to the environment where they hatch to release a free-living larva, the miracidium. The miracidium penetrates a molluscan first intermediate host (some marine species infect annelids). After penetration the miracidium develops into a mother sporocyst, the first intramolluscan generation. It multiplies parthenogenetically, producing the second intramolluscan generation – multiple daughter sporocysts or multiple rediae. Daughter sporocysts and rediae reproduce parthenogenetically generating the larvae of the sexual adult – cercariae. There are several ways for cercariae to infect the invertebrate or vertebrate second intermediate host, which host metacercariae. Cercariae may actively penetrate

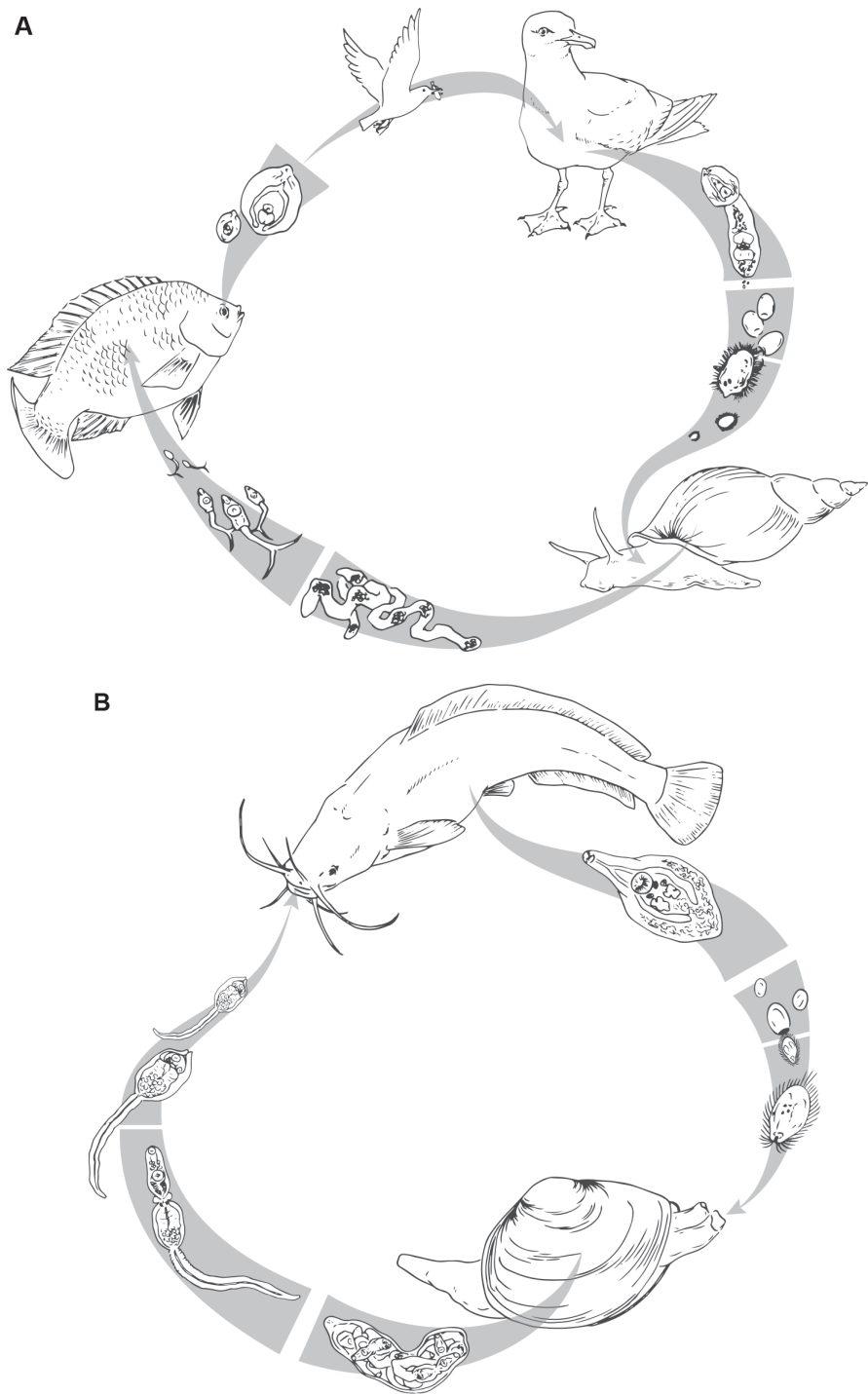


Fig. 4.5.1. Life cycles of trematodes. **A.** *Diplostomum* sp. (fish serves as the second intermediate host); **B.** *Phyllodistomum* sp. (fish serves as the definitive host). (Illustrations by M. Luo.)

through the skin or be eaten by the host. The vertebrate definitive hosts are infected when they consume the second intermediate host.

Trematoda includes two subclasses, Aspidogastrea and Digenea. The former subclass includes only 61 species (Alves *et al.* 2015) compared with almost 20,000 nominal species of digeneans. The fundamental unit of the **classification** of the Digenea is the superfamily. A total of 25 superfamilies with 148 families have been recognised (see Bray *et al.* 2008). As many as 60 families of digeneans include parasites of fishes, and 38 families are exclusively fish parasites. Relatively few of these families possess unique morphological traits that would differentiate them easily from each other. Therefore, individual families are usually characterised by a unique combination of non-unique morphological characteristics. Life cycles and cercarial morphology also play an important role in family definition. As a result, it is very difficult or almost impossible to present simple keys to the families of fish trematodes in Africa.

Seven basic morphotypes of digeneans are recognised based on their general body plan, especially the number and position of suckers, but most trematodes parasitic in African freshwater fishes belong to the distomatous morphological type, which has two suckers, the oral sucker at the anterior end of the body and the ventral one in the mid-region of the body.

Identification to the genus and species level is based on a high number of morphological characteristics, many of them related to the genital organs, such as relative position of the gonads, their shape and extent, the position of the genital pores, structure of the cirrus-sac, the size of the eggs, etc. (see Gibson *et al.* 2002; Jones *et al.* 2005; Bray *et al.* 2008 for keys to trematode genera).

Key to the genera of the Trematoda (adults) of freshwater fishes in Africa

- 1 (2) Ventral surface of the body with a large muscular, pad-like Baer’s disc with numerous alveoli.....***Aspidogaster*** (subclass **Aspidogastrea**) [Fig. 4.5.2A]
- 2 (1) Ventral surface of the body without the Baer’s disc....(**subclass Digenea**)
- 3 (4) Parasitic in the alimentary canal and associated cavities and organs7
- 4 (3) Not parasitic in the alimentary canal and associated cavities and organs..... 5
- 5 (6) Adults in the blood system.....***Sanguinicola*** (Aporocotylidae) [Fig. 4.5.2D]
- 6 (5) Adults in tissues of the body.....
.....***Nematobothrium*** (Didymozoidae) [Fig. 4.5.4H]
- 7 (8) Parasitic in gall or urinary bladders.....9
- 8 (7) Parasitic in other organs.....13

9 (10)	Parasitic in gall-bladder.....	11
10 (9)	Parasitic in urinary bladder..... Phyllodistomum (Gorgoderidae) [Fig. 4.5.4E]	
11 (12)	Body pyriform; testes symmetrical, extracaecal, <i>i.e.</i> , external to the caeca, at level of the ventral sucker; ovary between testes..... Callodistomum (Callodistomidae) [Fig. 4.5.2E]	
12 (11)	Body cylindrical; testes oblique, overlying caeca, posterior to the ventral sucker; ovary pretesticular, lateral, on the same side as the posterior testis..... Cholepotes (Callodistomidae) [Fig. 4.5.2F]	
13 (14)	Circumoral crown of spines present.....	15
14 (13)	Circumoral crown of spines absent.....	17
15 (16)	Intestinal bifurcation just anterior to the ventral sucker; caeca open externally by separate ani; cirrus-sac absent..... Acanthostomum (Cryptogonimidae) [Fig. 4.5.3F]	
16 (15)	Intestinal bifurcation close to pharynx; caeca blind; cirrus-sac present Masenia (Cephalogonimidae) [Fig. 4.5.3A]	
17 (18)	Forebody expanded laterally..... Deropristis (Deropristidae) [Fig. 4.5.4D]	
18 (17)	Forebody not expanded laterally.....	19
19 (20)	Ventral sucker at the posterior extremity.....	21
20 (19)	Ventral sucker ventral.....	27
21 (22)	Testes caecal or extracaecal.....	23
22 (21)	Testes intercaecal, in middle third of body close to caecal arch, may overlie caeca slightly..... Panamphistomum (Cladorchiidae) [Fig. 4.5.3D]	
23 (24)	Testes diagonal or tandem; anterior testis caecal or extracaecal, posterior testis intercaecal.....	25
24 (23)	Testes symmetrical, overlap caeca at or just behind level of intestinal bifurcation..... Brevicaecum (Cladorchiidae) [Fig. 4.5.3C]	
25 (26)	Body conical; acetabulum massive, wider than the body, with very large, prominent papillae, but without powerful horseshoe-shaped sphincter Basidiodiscus (Cladorchiidae) [Fig. 4.5.3B]	
26 (25)	Body elongate oval; acetabulum not massive, without very large papillae, but with a powerful horseshoe-shaped sphincter..... Sandonia (Cladorchiidae) [Fig. 4.5.3E]	

27 (28) One testis only.....	29
28 (27) Two or more testes.....	33
29 (30) Cirrus-sac absent.....	Haplorchoides (Heterophyidae) [Fig. 4.5.5B]
30 (29) Cirrus-sac present.....	31
31 (32) Body elongate; prepharynx indistinct; caeca cylindrical, long, often terminating near the posterior end of the body; testis entirely intracaecal; vitellarium at mid-body; uterus occupying much of hindbody, often extending into forebody.....	Paralecithobotrys (Haploporidae) [Fig. 4.5.4F]
32 (31) Body fusiform; prepharynx somewhat longer or shorter than pharynx; caeca sac-like, relatively short; testis entirely postcaecal; vitellarium in hind-body; uterus restricted to the hind-body.....	Saccocoelium (Haploporidae) [Fig. 4.5.4G]
33 (34) Testes two.....	35
34 (33) Testes nine.....	Siphodera (Cryptogonimidae) [Fig. 4.5.3H]
35 (36) Caeca terminate blindly.....	39
36 (35) Caeca unite to form cyclocoel.....	37
37 (38) Cirrus-sac present; testes symmetrical	Trematobrien (Apocreadiidae) [Fig. 4.5.2C]
38 (37) Cirrus-sac absent; testes tandem to oblique.....	Nicolla (Opecoelidae) [Fig. 4.5.5E]
39 (40) Cirrus-sac present.....	53
40 (39) Cirrus-sac absent.....	41
41 (42) Sinus-sac present.....	43
42 (41) Sinus-sac absent.....	45
43 (44) Pars prostatica long, may be sparsely surrounded by gland cells; seminal vesicle trilocular.....	Dinurus (Hemiuridae) [Fig. 4.5.6A]
44 (43) Pars prostatica short, connected to the seminal vesicle by the long glandular duct; seminal vesicle variable, tubular, saccular or divided into two or three sections.....	Ectenurus (Hemiuridae) [Fig. 4.5.5A]
45 (46) Vitellarium two masses at the posterior extremity of the body	47
46 (45) Vitellarium follicular, form two lateral bands in hind-body.....	49
47 (48) Testes anterior to the ovary and vitellarium	Halipegus (Derogenidae) [Fig. 4.5.4B]