

Endoparasites in two species of ranid frogs from Peninsular Malaysia, *Odorrana hosii* (Boulenger, 1891) and *O. monjerai* (Matsui and Jaafar, 2006), with comments on modes of infection

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Abstract

Odorrana hosii and *O. monjerai* from Peninsular Malaysia were examined for endoparasites. Only Nematoda were found. For *Odorrana hosii*, *Amphibiocapillaria bufonis*, *Cosmocerca ornata* and *Abbreviata* sp. (cysts) were found. For *O. monjerai*, *A. bufonis* and *C. ornata* were found. All are new host records.

Key Words

Nematoda, *Amphibiocapillaria bufonis*, *Cosmocerca ornata*, *Abbreviata* sp., new hosts, Peninsular Malaysia, prevalence

Odorrana hosii is known from southern Thailand, through the Malay Peninsula to Sumatra and throughout Borneo; it is nocturnal and occurs around the edges of rocky creeks or rivers (Grismer 2011). *Odorrana monjerai* is known only from the type locality: Terai River on Gunung Jerai, Kedah State, West Malaysia 5°47'N, 100°27'E (Matsui and Jaafar 2006). There are, to our knowledge, no published reports of helminths for these species. The purpose of this note is to establish the initial helminth lists for *O. hosii* and *O. monjerai*.

We conducted a helminthological examination on five *O. hosii* (mean SVL = 67.2 mm ± 15.3 SD, range = 51–84 mm) and three *O. monjerai* (mean SVL = 67.3 mm ± 4.6 SD, range = 62–70 mm) from Peninsular Malaysia collected from 2004 to 2012 and deposited in the herpetol-

ogy collection of La Sierra University (LSUHC), Riverside, California as: *O. hosii* LSUHC 6493, 7227, 10761 (Pahang State); LSUHC 9647 (Kedah State); LSUHC 8217 (Johor State) and *O. monjerai* LSUHC 10479, 10480, 10497 (Kedah State).

A lateral incision was made through the body wall and the digestive tract was removed. The oesophagus, stomach and small and large intestines were opened longitudinally and searched for helminths utilising a dissecting microscope. Helminths were cleared in a drop of lactophenol, placed on a microscope slide, cover-slipped and studied under a compound microscope.

Only Nematoda were found. Identification was made utilising Anderson et al. (2009) and Gibbons (2010). For *A. bufonis*, we also used drawings in Morishita (1926)

and for *C. ornata* we also utilised Bala (2016). For *O. hosii*, one female each of *Cosmocerca ornata* was found in the large intestine of LSUHC 6493 and 8217 (prevalence, number hosts infected/ total hosts examined X 100 = 40%). Two females of *A. bufonis* were found in the small intestine of LSUHC 8217 (prevalence = 20%). Three and four cysts of *Abbreviata* sp. were found encysted in the stomachs of LSUHC 8217 and 9647 (prevalence = 40%). For *O. monjerai*, two males of *A. bufonis* were found in LSUHC 10479 and 4 (two males, two females) in LSUHC 10497 (both small intestines) prevalence = 66%. Two (one male, one female) *C. ornata* were found in the large intestine of LSUHC 10497 (prevalence = 33%).

Amphibiocapillaria bufonis has previously been found in amphibians from China and Japan (Goldberg and Bursey 2002). Capillarids typically have a direct life cycle with infection occurring when larvated eggs are ingested (Anderson 2000). *Cosmocerca ornata* is widespread and occurs in the Afrotropical, Neotropical, Oceanian, Oriental and Palearctic regions (Baker 1987). Infection may occur by larval skin penetration (Anderson 2000). Frogs serve as transport (= paratenic) hosts for larvae of *Abbreviata* sp. as they remain in cysts and complete development when eaten by a definitive host. Vouchers of *A. bufonis*, *C. ornata* and *Abbreviata* sp. were deposited in the Harold W. Manter Laboratory, (HWML), University of Nebraska, Lincoln, USA as: *O. hosii*: *A. bufonis* (HWML 110437), *C. ornata* (HWML 110438), *Abbreviata* sp. (HWML 110439); *O. monjerai*: *A. bufonis* (HWML 110441), *C. ornata* (HWML 110440). All are new host records.

References

- Anderson RC (2000) Nematode Parasites of Vertebrates Their Development and Transmission, CABI Publishing, Wallingford, 650 pp. <https://doi.org/10.1079/9780851994215.0000>
- Anderson RC, Chabaud, AG, Willmott S (2009) Keys to the Nematode Parasites, Archival Volume. CAB International, Wallingford, 463 pp. <https://doi.org/10.1079/9781845935726.0000>
- Baker MR (1987) Synopsis of the Nematoda parasitic in amphibians and reptiles. Memorial University of Newfoundland, Occasional Papers in Biology (St. Johns) 11: 1–325.
- Bala K (2016) Description of *Cosmocerca ornata* (Nematoda: Cosmocercidae) in *Duttaphrynus melanostictus* from Distt. Una, Himachal Pradesh, India. Journal of Environmental and Applied Bioresearch 4: 49–51.
- Gibbons LM (2010) Keys to the Nematode Parasites of Vertebrates, Supplementary Volume. CAB International, Wallingford, 416 pp. <https://doi.org/10.1079/9781845935719.0000>
- Goldberg SR, Bursey CR (2002) Helminths of 10 species of anurans from Honshu Island, Japan. Comparative Parasitology, Lawrence: 69(1): 162–176. [https://doi.org/10.1654/1525-2647\(2002\)069\[0162:HOSOAF\]2.0.CO;2](https://doi.org/10.1654/1525-2647(2002)069[0162:HOSOAF]2.0.CO;2)
- Grismer LL (2011) Field Guide to the Amphibians and Reptiles of the Seribu Archipelago (Peninsular Malaysia). Edition Chimaira, Frankfurt am Main, 239 pp.
- Matsui M, Jaafar I (2006) A new cascade frog of the subgenus *Odorrana* from Peninsular Malaysia. Zoological Science (Tokyo) 23: 647–651. <https://doi.org/10.2108/zsj.23.647>
- Morishita K (1926) Studies on some nematode parasites of frogs and toads of Japan, with notes on their distribution and frequency. Journal of the Faculty of Science, Imperial University of Tokyo, Sect. IV, Zoology 1: 1–32.

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