

A PRELIMINARY STUDY ON THE GUT PARASITES OF *RAMANELLA OBSCURA* (ANURA: MICROHYLIDAE)

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Ramanella obscura (Günther, 1864) is an endemic species of frog in Sri Lanka. Although some aspects of its biology are known, studies on endoparasites of this frog are lacking. Present study investigates the gut parasites of *Ramanella obscura*.

A total of 155 tadpoles and 2 adults collected from two man-made ponds (A and B) at Sarasavigama (Kandy District) were examined for gut parasites. Tadpoles ($n = 5$) were dissected at weekly intervals for parasite counts and species identification. Light microscope measurements of parasites ($n = 30-50$ parasites/observation) were made after staining with Delafield's Haematoxylin and alcoholic Eosin. Morphological features and light microscope measurements were used for species identification.

The two frogspawn examined contained 327 and 220 eggs respectively. Embryonic development from fertilization to hatching took 48-72 hours. Emergence of adults from the two ponds observed was observed at 80 and 101 days respectively. Protozoan parasites belonging to three genera (*Opalina*, *Protoopalina*, and *Nyctotherus*), their juvenile and sexual forms were observed in the guts of tadpoles. The species identification of juveniles was not possible, as all morphological features were not developed. Only *Opalina* and one nematode parasite species (unidentified) was observed in the limit number of adults examined. In general, prevalence of infection in tadpoles, for all protozoan species ranged from 20-80%. The parasite abundance in tadpoles from both spawns ranged from, *Opalina* 5-1902, *Protoopalina* 6-816 and *Nyctotherus* 1-28. Mean length (μm) and width (μm) of parasites collected at weekly intervals, from tadpoles and adults of ponds A and B ranged from, *Opalina*, $70.06 \pm 28.06 - 106.12 \pm 15.28$ and $23.78 \pm 7.69 - 79.04 \pm 19.40$; $43.89 \pm 4.95 - 153.54 \pm 49.53$ and $16.23 \pm 2.50 - 41.17 \pm 11.03$; *Protoopalina*, $97.79 \pm 8.50 - 113.22 \pm 2.67$ and $19.9 \pm 1.70 - 31.30 \pm 3.19$; $75.58 \pm 19.81 - 116.23 \pm 22.17$ and $13.83 \pm 6.89 - 20.24 \pm 4.74$; *Nyctotherus*, $19.54 - 155.50 \pm 59.22$ and $10.66 - 114.65 \pm 51.69$; $60.38 - 154.88 \pm 76.26$ and $37.29 - 108.97 \pm 73.68$ respectively. At both ponds, infections with *Opalina*, occurred first (42 and 27 days respectively), followed by the other two protozoan infections (50 and 34 days respectively). For all parasite species, the highest number of parasites was collected from tadpoles in Pond B. Only a limited number of adults were available for observation.

Tadpoles of *Ramanella obscura* become infected with protozoan parasites (*Opalina*, *Protoopalina*, *Nyctotherus*) during early development. Infections occur through the ingestion of cysts of the parasite, which are usually discharged into water by the adult frogs during the breeding season. The abundance and sizes of protozoan parasites varied, probably due to the available nutrients, overall density of the parasites per host and also environmental conditions. The absence of *Protoopalina* and *Nyctotherus*, in the frogs cannot be explained due to the small sample size examined during this study. Nematode infections occur only after tadpoles reach adult stage. To the best of our knowledge, this is the first record of the parasite fauna of *Ramonaella obscura*. Further studies need to be done for the identification of the parasite species. Studies such as these contribute to the knowledge and understanding of co-evolution of hosts and their parasites.