The life cycle of Gyliauchen volubilis Nagaty, 1956 (Digenea: Gyliauchenidae) from the Red Sea

M.O. Al-Jahdalia1 and R.M. El-Said Hassanine

Abstract:

Although nothing is known about gyliauchenid life cycles, molecular phylogenetic studies have placed the Gyliauchenidae Fukui, 1929 close to the Lepocreadiidae Odhner, 1905. The gyliauchenid Gyliauchen volubilis Nagaty, 1956 was found in the intestine of its type-host, Siganus rivulatus, a siganid fish permanently resident in a lagoon within the mangrove swamps on the Egyptian coast of the Gulf of Aqaba. Larval forms of this trematode (mother sporocysts, rediae and cercariae) were found in the gonads and digestive gland of Clypeomorus clypeomorus (Gastropoda: Cerithiidae), a common snail in the same lagoon. So, this life cycle of G. volubilis was elucidated under natural conditions: eggs are directly ingested by the snail; mother sporocysts and rediae reach their maturity 3–6 and 11–13 weeks post-infection; rediae contain 23–29 developing cercariae; fully developed cercariae are gymnocephalus, without penetration glands, emerge from the snail during the night 16–18 weeks post-infection and rapidly encyst on aquatic vegetation (no second intermediate host); encysted metacercariae are not progenetic; 4-day-old metacercariae encysted on filamentous algae fed to S. rivulatus developed into fully mature worms 6–8 weeks post-infection. The cycle was completed in about 26 weeks and followed one of the three known patterns of lepocreadiid life cycles, and except for the gymnocephalus cercariae, the other larval stages are very similar to those of lepocreadiids. Generally, the life cycle of G. volubilis implicitly supports the phylogenetic relationship of Gyliauchenidae and Lepocreadiidae inferred from molecular phylogenetic studies.

Published In:

Journal of Helminthology , 86 , 165-172