The life cycle of Sclerocollum saudii Al-Jahdali, 2010 (Acanthocephala: Palaeacanthocephala: Rhadinorhynchidae) in amphipod and fish hosts from the Red Sea

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Abstract:

The rhadinorhynchid Sclerocollum saudii Al-Jahdali, 2010 was found in the intestine of its type host, Siganus rivulatus Forsskål & Niebuhr, 1775, a siganid fish permanently resident in a lagoon within the mangrove swamps found on the Egyptian coast of the Gulf of Aqaba (between 28°7′N and 28°18′N). Larval forms of this acanthocephalan (acanthors, acanthellae and cystacanths) were only found in Megaluropus agilis Hoek, 1889 (Crustacea: Gammaridae), a benthic amphipod abundant on algae and seagrasses in the lagoon. So, this life cycle of S. saudii was elucidated under semi-natural conditions: embryonated eggs of S. saudii were directly ingested by the amphipod and hatched in its intestine; the released acanthor penetrated the intestinal epithelium in 12–18 h to reach the connective tissue serosa, where it remained for about 3 days, then penetrated the intestinal wall and remained attached to its outer surface for 4 days. It then detached and dropped free in the amphipod haemocoel and transformed into an oval acanthella, growing for 16 days to reach the cystacanth stage. The cystacanth at 46 days post-infection was infective to fish (excysted in its intestine as an active juvenile). Male and female juveniles reached maturity 17 and 23 days post-infection. Recently copulated females first appeared 26 days post-infection and all females seemed to be copulated at 28 days post-infection; partially and fully gravid females first appeared 31 and 35 days post-infection. Mature males and fully gravid females started to die off naturally 31 and 43 days post-infection and were totally expelled from the fish intestine by 42 and 52 days post-infection. The cycle was completed in 89 days and is similar to other known palaeacanthocephalan life cycles, but has its own characteristics.

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