

Are *Kogia* sp. whales hiding a secret concerning anisakid biodiversity?

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Anisakid nematodes are a ubiquitous taxon of marine mammal parasites, with complex life cycles also involving invertebrates and fish. Studies investigating the biodiversity of *Anisakis* species in various cetacean hosts showed a clear pattern of host preference of anisakid species at cetacean family level, as result of co-evolutionary processes between these parasites and their hosts. However, anisakid biodiversity and parasite/host associations in kogiid whales remain unclear. To date, mature adults of *A. brevispiculata*, *A. paggiae*, *A. physeteris*, *Pseudoterranova ceticola*, and *P. kogiae*, have been reported in *Kogia breviceps* and *K. sima*. The present study investigated the anisakid biodiversity in stranded specimens of *K. breviceps* from the NE Atlantic Ocean. Adult nematodes from eight individuals of pygmy sperm whale *K. breviceps* from the Galician coast (NW Spain) and a single specimen from Scottish waters were characterized based on mtDNA *cox2* and ITS rDNA sequences. *Anisakis brevispiculata*, *A. paggiae*, *P. ceticola*, and an undescribed genotype (likely *P. kogiae*) were identified, often co-infecting the same individual host. *A. simplex* (s.s.) and *A. pegreffii* were also found, mostly as immature adults, probably reflecting their low fitness in this cetacean species. The findings indicate that *K. breviceps* hosts a diverse and peculiar assemblage of anisakid nematodes, thus representing an important definitive host for these parasite species, maintaining anisakid biodiversity in the mesopelagic/deep-sea food web. The association between these anisakid parasites and their kogiid hosts may reflect a long co-evolutionary history, driven by common trophic adaptation, most likely connected to the mesopelagic or deep-sea realm. In this context, kogiids species could help to shed light on the evolutionary radiation of these cosmopolitan anisakids within their marine mammal hosts, while their parasites could whisper us some clues on their mysterious hosts.