

Title: Host ration affects plerocercoid growth in three-spined sticklebacks infected with *Schistocephalus solidus* (Cestoda: Diphylobothriidae)

Authors: AWAD HOSAN and IAIN BARBER

Address: Department of Neuroscience, Psychology and Behaviour, College of Medicine, Biological Sciences and Psychology, University of Leicester, LEICESTER LE1 7RH, UK

Abstract

Host dietary factors, including the quantity and quality of food ingested, have considerable potential to influence the outcome of host-parasite interactions. For example, increased food intake may improve resistance to parasite infections if it improves host immune responses; however, it could alternatively increase the supply of nutrients available to parasites, benefiting parasite growth and development. The aim of this study was to investigate the effects of host ration on the growth of *Schistocephalus solidus* plerocercoids in experimentally infected three-spined sticklebacks *Gasterosteus aculeatus*. Lab-bred sticklebacks were either exposed to infective stages of *S. solidus* by feeding them copepods containing infective parasites, or were sham-exposed. Experimental fish were subsequently fed either a high ration or a reduced ration (6% or 3% body weight per day respectively) for a period of 12 weeks. At the termination of the study, fish were dissected and a range of indices of fish growth, energetic status, health and infection status were quantified. Our results indicate that the level of host ration play an important role in value of the indices and suggest that host ration had a significant effect on the performance of both infected and non-infected fish in the study