

Propagation and fatty acid enrichment of the nematode *Panagrolaimus* sp. (strain NFS 24-5), a potential life food for marine fish and shrimp larvae

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The major bottleneck in aquaculture industry is the dependency of first feeding fish/shrimp larvae on live food organism. Continuous culture and steady supply of typically used live preys like rotifers and *Artemia* is highly variable and is dependent on several factors which ultimately turned the aquaculturists to find a suitable new alternative. The bacterial-feeding, free living nematode, *Panagrellus redivivus* has been used by several authors for several decades but its use in aquaculture is limited due to the lacking of proper culture technique and suitable storage methods. The nematode *Panagrolaimus* sp. (strain NFS 24-5) has several characteristics, which makes it superior to *P. redivivus*. As life cycle data on this nematode were still lacking, the present study aimed at producing data on two important culture parameters, the optimum temperature and food density, both assessed with single pairs of nematodes in hanging drops of cell suspensions of *Escherichia coli*. The data on the basic reproductive biology were compared with results from liquid cultures in flasks. Two different food organisms were tested, *E. coli* and the dinoflagellate *Cryptothecodinium cohnii*. More than 200 offspring per female was produced at 27°C and at a food density of 3×10^6 *Escherichia coli* cells ml⁻¹. The intrinsic rate of natural increase (r_m) was 0.93 at 27°C corresponding to a population doubling times of 0.7 revealed that *Panagrolaimus* sp. NFS 24-5 is one of the fastest growing species in the genus. Enrichment of the nematodes with the essential fatty acid DHA originating either from *C. cohnii* was compared to the commercially available enrichment product S.presso®. The lipid profile of the nematode was analysed by Gas Chromatography after enrichment and subsequent storage of 4 weeks. Feeding trials with different fish/shrimp larvae should be conducted with this nematode to prove its overall suitability for use in marine aquaculture.