

Advancing aquaculture sustainability through copepod-based live feed systems

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Globally, there has been an increasing demand for animal-based nutritional protein due to a drastically growing population. This has strengthened the reliance on aquaculture with aquaculture surpassing capture fisheries in the supply of aquatic food sources such as fish, crustaceans and molluscs. However, the aquaculture sector faces challenges regarding feed sources. Currently, the most frequently used live fish feed are rotifers (*Brachionus* sp.) and brine shrimp (*Artemia* sp.). These species are naturally deficient in poly unsaturated fatty acids, which are of high importance in marine food webs. The increasing global demand for sustainably produced, fatty acid-rich feeds presents a significant issue. In this research, the use of copepods as a live feed source for larval feeding in aquaculture will be investigated. Copepods are known to enhance the survival, growth and development of fish larvae. However, scaling up of copepod cultures to commercial volumes and densities remains a complex task. To address these challenges, the food quality, focusing on the fatty acid content, of copepods under changing environmental conditions (temperature, pH and salinity) will be evaluated. Fatty acid profiles will be analysed using GC-MS. Next to that, the scalability of copepod cultures will be tested. Two benthic copepod species and one pelagic copepod species will be selected. Key will be stimulation of reproduction during scaling, therefore regular observation, identifying of hatching triggers, developmental stage monitoring, and analysing of molting triggers will be applied. The findings of this study may advance sustainable aquaculture.

Keywords

Sustainability; Aquaculture; Copepods; Fatty Acids