



Hans H. Ruthenberg-Graduierten-Förderpreis 2000/

Hans H. Ruthenberg Award for Graduates 2000

Christian Schlechtriem „Effect of L-Carnitin on growth, food conversion, body composition and mortality of tilapia-hybrids (*Oreochromis niloticus* x *Oreochromis aureus*) under pond-culture conditions in Israel“

University of Hohenheim, 1999

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Summary

Between 20th. May and 17th, September 1997 a feeding experiment was carried out on tilapia-hybrids (*O. niloticus* x *O. aureus*) under pond-culture conditions at the Aquaculture-Research-Station in Dor, Israel. The objective of the experiment was to test whether feed supplemented with L-Carnitine has a positive influence on growth, feed conversion, body composition and mortality of these fish.

The experiment was carried out in a 1.8ha fishpond, which was used to grow the species typical of Israeli polyculture, carp, tilapia, and grey mullet. 36 floating cages, each 1m³ in size, were set up in a random block design and stocked with 50 fish each. A commercial feed supplemented with L-Carnitine at six different concentrations (0, 75, 150, 300, 450 and 600 ppm) was tested in 6 replicates per concentration.

The growth of the tilapias was determined by recording the weight of each individual cage's contents. During the experiment the weight of the fish increased fourfold from an average initial weight of 80g to an average final weight of 320g. To estimate the chemical composition and the gross energy- and L-Carnitine content of the animals at the beginning, half way stage and end of the experiment, fish samples were collected from the cages. The environmental conditions (temperature, dissolved oxygen, ammonium, nitrite and nitrate) were checked regularly. The occasional bad water quality (high temperature, low dissolved oxygen, high ammonium, high nitrite) induced stress in the fish. An outbreak of *Streptococcus* caused by the stress led to high mortality.

Specific and Metabolic Growth Rates were determined from the fish weights recorded during the experiment. The Feed Conversion Ratio was calculated from the weight of the administered feed and the weight increase of the fish on a per cage basis; these results were used in conjunction with the proximate composition of feed and body composition of fish to determine nutrient utilisation.

The L-Carnitine content of the fish tissue was compared for the different concentrations. The aforementioned parameters were tested for affects of L-Carnitine with the help of ANOVA and t-test. No significant effect of L-Carnitine on these parameters was determined ($p>0.05$).