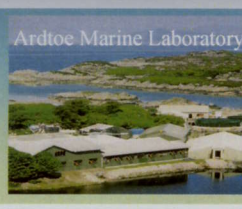
NOVARTIS
ANIMAL HEALTH

Pyceze® as a Means of Live Feed Disinfection



Research Objectives

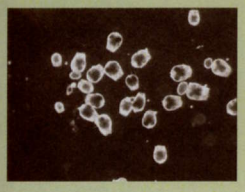
In marine larviculture, live feed cultures are known to contain very high levels of bacterial contamination especially after enrichment. It is suspected that such contamination can cause reduced larval survival and may even be the source of some bacterial infections. Whilst washing live feeds in clean or sterile seawate after harvest is recommended, such washing may not be sufficiently effective at reducing bacterial numbers to acceptable levels.

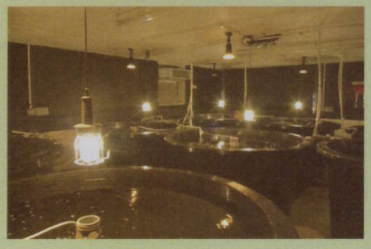
Pyceze, manufactured by Novartis, is currently licensed for use as a treatment for fungal infections in salmonids. Its active ingredient , bronopol, has broad spectrum anti-bacterial and preservative properties, and for this reason is currently used in a wide range of health care products.

This poster describes trials using Pyceze to disinfect rotifers, *Brachionus plicatilis* and Artemia, *Artemia salina*, prior to feeding them to cod, *Gadus morhua* larvae

Live feed disinfection

Can live feed disinfection promote larval cod survival? The effects of UV on both rotifers and *Artemia* was compared with a more easily administered chemical agent and the effects on live feed survival examined. The effects of disinfected live feed on cod performance was also examined on a replicated commercial scale.





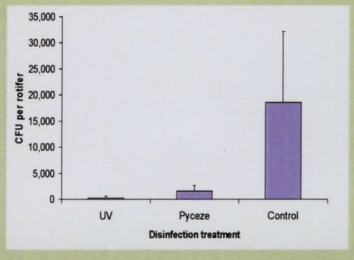
Methods

Rotifers were first dosed with either *Pyceze* (50% W/V bronopol) at 30 mg l^{-1} active bronopol for 6 h or UV. The rotifers were sampled, homogenised, serially diluted and plated on to marine agar and Colony Forming Units (CFU's) counted.

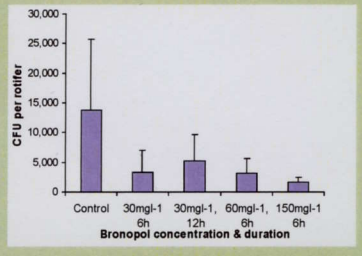
In the next phase of the experiment rotifers and Artemia were exposed to different concentrations of Pyceze. In the final trial larvae in 3 production tanks were fed exclusively feed disinfected with Pyceze and survival and growth were compared with 3 tanks where untreated live feed was used.

Results

A. Rotifer Disinfection

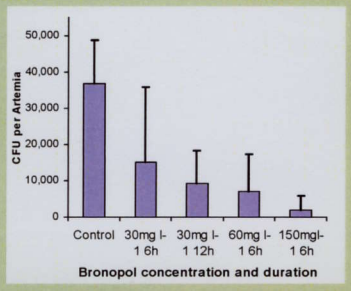


•Pyceze disinfection treatment was found to be as effective as the more labour intensive UV- disinfection



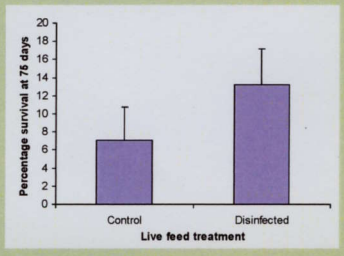
- Disinfection efficacy of rotifers increased with dosage, as did mortality
- Rotifer survival was comparable to controls at 30 mg l^{-1}, with appreciable levels of disinfection achieved

B. Artemia Disinfection

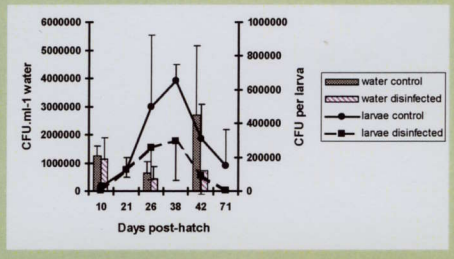


- There was no difference in Artemia survival between treatments
- Treatment can be applied in practice during the enrichment process

C. Cod Larval Survival



•Survival of larvae was higher with disinfection of the live feed



•Bacterial numbers were significantly higher both in the water and the larvae from 42 days post hatch when the live feed was not disinfected

Conclusions

- •Care should be taken with rotifers not to exceed the dose or duration, or significant mortality will occur
- •*Artemia* appear more robust than rotifers to disinfection with Pyceze
- •Disinfection has some effect on both rearing water and larvae promoting larval survival, by moderating the abundance of pathogenic bacteria