

Sea bass protected against vibriosis

VIBRIO bacteria are a normal part of the marine environment occurring in most invertebrates, in fish, in water samples, on plants and in sediments. Effective digestion in many of these animals depends on their presence.

Despite this, they frequently cause serious disease in stressed or weak individuals and consequently can be a significant problem in fish culture.

Mediterranean sea bass are no exception and heavy economic losses are suffered annually when water temperatures rise above 10C.

Sea bream populations growing next to diseased sea bass frequently do not show clinical signs of the disease, but have been found to be carriers.

Among the many species of vibrio causing disease, *Vibrio anguillarum*, a small gram negative, rod-shaped bacterium, is the most important and in the northern Mediterranean both serotypes I and II of this organism have been shown to cause disease.

Even without mortalities, infections may be sufficiently severe as to cause a loss of condition and a depression in growth rate of the fish population as a whole.

In the face of this problem, many industries have resorted to the routine use of vaccines which confer a high degree of protection when correctly used. Their use in salmon, trout, warmwater marine species and even shrimp is now a standard part of husbandry in all important areas for fish culture, in Scandinavia, North and South America and Asia.

Because of the variation which occurs in vibrio isolates, most of these vaccines differ slightly in their formulation for application in different areas and species and are usually multivalent.

Vibrogen-2 vaccine has been formulated especially for use in the Mediterranean and comprises a killed, sterile bacterin containing suit-

Report by
Dr Panos Varvarigos,
Director, Veterinary
Care Ltd, Athens.

able isolates of both serotypes I and II.

As a full veterinary product, each batch is carefully tested for safety and efficacy before it is allowed to be released. It can be administered by injection, by immersion or by spraying directly onto the fish according to what suits an individual farm's preference.

Small fish of around 1.5 to 5 grams are usually vaccinated by direct immersion in diluted vaccine for 30 seconds when each litre of undiluted vaccine contains sufficient antigen for a biomass of 100 kg of fish. This is usually carried out in the hatchery prior to transport to the on-growing site, or at the on-growing site prior to release in the sea cages.

Larger fish, of 70-100 grams, are sprayed with vaccine although immersion also gives good protection if preferred. With the spray method, a pump of moderate pressure is used to deliver a fine spray to which the fish must be exposed for 3-5 seconds.

On each farm, a degree of preliminary work is necessary to establish the correct flow parameters in the spray area but the procedure is basically very simple and allows 250 kg of fish to be vaccinated from each litre.

The routine use of vaccines is seen as a tool which can be integrated into normal farm practice alongside existing management procedures.

These vaccines are sterile, harmless to man and animals, have no residues and are environmentally safe. No adverse interactions occur between them and antibiotics, which can still be used when necessary, although the regular use of vaccines normally reduces the amount of antibiotic used in each growth cycle.

This is particularly important not only in avoiding the constant reliance on antibiotics but also in combating the occurrence of multiple drug resistant strains of bacteria which is quickly produced by the regular use of antibiotics.

Frequently, the protection conferred by the vaccine leads also to a significant improvement in growth rate of treated fish, as indicated by Figure 1, which shows such data on marine groupers.

Vibrogen-2 is produced by Aqua Health Ltd and is available in the Mediterranean from Vet Care Ltd., 9-11 Laodikias Street, 115 28 Athens, Greece. Fax: +30 1 770 4370.

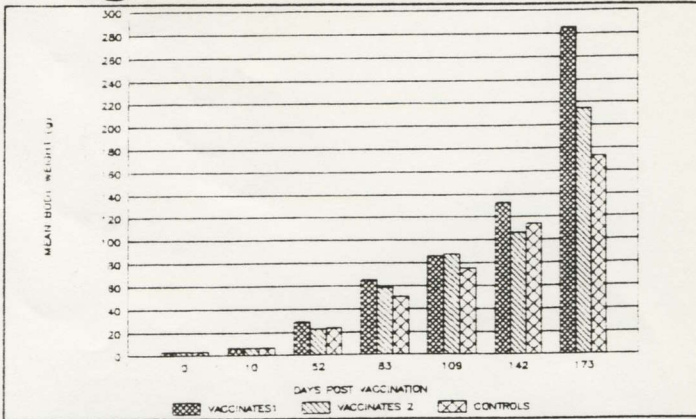


Fig. 1. Field data showing the difference in growth between two vaccinated groups with Vibrogen-2 (vaccinates 1 and 2) and an untreated group held as a control.

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