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TREATMENT OF BROOK TROUT AT BALDWIN REARING STATION

WITH SULPHATHIAZOLE

by

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An internal bacterial disease among yearling brook trout at the Baldwin Rearing Station occurred in April and May, 1943. It was investigated in May and described in Report No. 868. Externally the disease was manifest by protruding eyes, bloody vent and blisters beneath the skin which usually were filled with a clear fluid. Only rarely did they contain bloody pus. Internally, diseased fish exhibited a haemorrhagic large intestine and large gray pustules in the kidneys that sometimes involved nearly the entire organ. No bacteriological cultures were made because of the lack of proper media at that time.

Because the disease attacked the internal organs and seemed to be carried by the blood to various locations in the body of the fish, it seemed logical to try internal medication. A treatment involving potassium iodide and iodine, used at the Grayling Hatchery to suppress furunculosis, was tried to no avail. Mr. J. T. Wilkinson suggested that since sulphathiazole is successfully used in treating certain human diseases it might be useful in controlling this disease. After the initial treatment Mr. Wilkinson made all injections during the experiment.

The drug was injected into the body cavity rather than being added to the diet for reason of greater accuracy in the dose each fish would receive. Sodium sulphathiazole was used in the experiment because of its solubility in water; sulphathiazole itself is not soluble in water. The dosage was based on that prescribed for humans, 0.28 grains per 10 pounds of body weight, and solutions of different strengths, 1X, 2X, 4X, were prepared and injected in 1 cc doses. The drug was dissolved in unsterilized distilled water. As a check on the effects of injecting unsterilized distilled water into the fish, one lot of fish were injected with part of the distilled water from which the solutions were made. One lot of fish was not injected but fed a diet pure liver to determine the effect of this diet on the disease. Injections were made just behind the pelvic fins.

Five groups of 50 fish each were used for experimentation. These fish were chosen at random from the pond containing the diseased brook trout and averaged 110 fish per pound. No empty ponds were available for experimental use so the five compartments between flash boards and head screens of pond #1 which contained the diseased fish were used. The experiment was set up as follows:

Compartment #1. Dorsal fin clipped.

To be fed on liver only.

#2. Dorsal and one pelvic fin clipped.

One cc. distilled water injected into body cavity every Tuesday and Friday.

Normal Hatchery diet.

To be used as control pond.

#3. Anal fin clipped.

One cc 1X sulphathiazole solution (0.28 grains in 110 cc. distilled water) injected into body cavity.

Diet as in #2.

#1. Anal fin clipped.

One cc. 2X sulphathiazole solution (0.28 grains in 55 cc. distilled water) injected into body cavity.

Diet as in #2.

#5. Anal fin clipped.

One cc. 4X sulphathiazole solution (0.56 grains in 55 cc. distilled water) injected into body cavity.

Diet as in #2.

Mr. J. T. Wilkinson injected the fish every Tuesday and Thursday for four weeks. An accurate daily loss and water temperature records were kept. At the termination of the experiment, all fish left in the pond were autopsied.

	#1	#2	#3	#4	#5
Number of fish at beginning of treatment	50	50	50	50	50
Recorded loss	6	7	11	10	25
Unknown loss	16	27	12	6	9
Number of fish at end of treatment	28	16	27	34	16

Aside from natural predators, the high unknown loss may be explained, at least in part, by the fishing activities of several boys who removed an undetermined number of fish from the experimental enclosures before being put to flight by the caretaker, Mr. Gilbert. Mr. Gilbert also reported having observed marked fish that had escaped from the enclosures into the river above. Marking experiment summary cards were filled out and filed in case any of the escaped fish are reported later.

At autopsy, no difference was noted between the five groups of fish and none of the treated fish appeared to have been injured by the repeated injections other than the small punctures made by the needle.

A study of the temperatures and daily loss records during the period of the experiment gave no indication of a distinct correlation.

The high unknown loss prevents an accurate criticism of the experiment. Further work of this nature should not be undertaken until proper experimental conditions are available.

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