

INAD 4000 H-0071

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JUL 11 2000

Dear Dr. Erdahl:

We refer to your submission dated April 17, 2000, in which you requested our review of a study conducted to demonstrate the effectiveness of chloramine-T for the control of mortality associated with bacterial gill disease (BGD) in rainbow trout.

We have completed our review of the submitted study and offer the following comments.

1. CVM concurs that the study in this submission adequately demonstrates the effectiveness of chloramine-T at a concentration of 12 ppm administered as a 60 minute bath every other day for three treatments for the control of mortality associated with bacterial gill disease in rainbow trout. The data provided in this submission combined with the data generated from pivotal studies conducted in apache trout and fall chum salmon submitted into PMF 5637 (C-0003, dated January 7, 2000) are adequate in demonstrating the effectiveness of chloramine-T at a concentration of 12 ppm administered as a 60 minute bath every other day for three treatments for the control of mortality associated with bacterial gill disease (BGD) in freshwater-reared salmonids. Accordingly, the effectiveness technical section is complete for this indication in freshwater-raised salmonids.
2. We were not able to verify the statistical analyses provided in Appendix XIII based on the information provided. Therefore, we re-analyzed the mortality data using two methods: mixed models (MIXED) and generalized linear models (GENMOD). Treatment was included as a fixed effect in both analyses. In the MIXED analysis, cumulative mortality rates were transformed using an arc sine transformation $\{\sin^{-1} \sqrt{\text{proportion}}\}$ prior to analysis. In the GENMOD analysis, a binomial error distribution with a logit link function was used, with an overdispersion variable. The least-squares means and back-transformed percentages are presented in the following table.

Table 1. The least-squares means and back-transformed cumulative mortality percentages from the MIXED and GENMOD procedures for rainbow trout

Treatment	MIXED		GENMOD	
	LSMean	Percentage	LSMean	Percentage
0 mg/L	0.5309	25.6%	-1.0581	25.8%
12 mg/L	0.2409	5.7%	-2.8060	5.7%
p-value	.0015	--	<.0001	--

The p-value from the MIXED procedure is similar in magnitude to the p-value from the t-test presented in Appendix XIII. The MIXED results are presented here for clarification.

3. The following table should be included in the FOI Summary for this study.

Table 2. Percent mortality occurring in rainbow trout during Study No. 4000-1-004 from the initiation of medication through the post-treatment observation period

Treatment	Total Mortality
No treatment	25.8 (773/3000)
Chloramine-T 12 ppm	5.7 (171/3000)

Future correspondence regarding this submission to the INAD should be identified by the date of the submission and our file number, INAD 4000 H-0071, and be addressed to the Document Control Unit, HFV-199. Please include only one request per submission, clearly stating the request in the first paragraph of the submission.

If you have any questions or comments regarding this correspondence, please telephone Dr. Joan Gotthardt, Leader, Aquaculture Drugs Team at 301-827-7571.

Sincerely yours,



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Drugs for Food Animals
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