

The Effect of Stress Coat® on the Healing of common goldfish *Carassius auratus*

Study performed at the University of Georgia, School of Veterinary Medicine



INTRODUCTION

Every time a fish is netted, handled or in stressful situations, the slime coat is disturbed, making fish vulnerable to disease and tissue damage resulting in open wounds. Particularly when fish are shipped in dense concentrations, they are subject to trauma, such as being scraped, bitten and otherwise wounded. The first line of defense for fish is the epithelial mucus or "slime" coat. The slime coat not only provides protection against pathogens, but also helps heal small wounds. Slime is produced on a continuous basis which will allow trapping of pathogens that can be washed into the water as mucus. Lack of slime will result in wounds that do not heal.

METHODS

- Twelve 10 gallon aquariums were setup with biological filtration. Water temperature was held at 75°F (24°C). Water was buffered at pH 7.5. Fish were fed daily. Fifteen common goldfish *Carassius auratus*, with similar wounds, were placed into each aquarium.
- Over the next 40 days 9 of the 12 aquariums were treated with STRESS COAT. Three aquariums were left as untreated controls.
- Water samples were collected daily and analysed for Ammonia, Nitrite and pH.
- At the 40 day mark fish were examined by seven university faculty members consisting of veterinarians and histologists. All of the examiners worked independently and were not aware of which fish received the STRESS COAT treatment. The examiners evaluated the wounds on a scale of 1 to 4 based on the following criteria:

Value Description

- 1 No discernible wound, discoloration or redness
- 2 Just discernible wound, discoloration or redness
- 3 Wound readily discernible, less than value 4.
- 4 Redness, open wound, very apparent wound, scales disrupting, exudate, fungus, frayed edges on wound

RESULTS

Statistical analysis of the rating data from seven university faculty members, performed by a biostatistician, showed a significant difference between the treated fish and untreated controls. The STRESS COAT treated fish showed more advanced tissue healing than untreated fish tissue. Examiners found that STRESS COAT with Aloe vera helped heal the wounds and reduce the wound size compared to untreated fish tissue.



Wounded Fish

DISCUSSION

The effect of STRESS COAT on wound healing in goldfish was studied. It was found that the addition of STRESS COAT resulted in a significantly higher healing and wound reduction during the 40 day time interval. This proves that STRESS COAT with Aloe vera plays an important role in maintaining the health and improving the repair of damaged tissue in fish. Wound size was also studied; the results showed that fish treated with STRESS COAT showed a greater reduction in the size of the wound, when compared to untreated fish.

The results of this test marks the first time a water conditioner has ever proven to promote healing of damaged fish tissue. These results led to the issuing of a patent for the use of Aloe vera on fish by the United States Patent Office.

Reference –

- Evans, David H. 1998. *The Physiology of Fishes* Second Edition. CRC Press LLC, Boca Raton, FL.
- Francis-Floyd R. (2002). *Stress - Its Role in Fish Disease*. CIR919, Fisheries and Aquatic Sciences Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida.
- Udomkusonsri, P. and E.J. Noga. 2005. The Acute Ulceration Response (AUR): A potentially widespread and serious cause of skin infections in fish. *Aquaculture* 246:63-77.



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