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Hematological Changes Associated with Epizootic Ulcerative Syndrome in the Asian Cichlid Fish, *Etroplus suratensis*

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Abstract

Apparently healthy and epizootic ulcerative syndrome (EUS)-positive *Etroplus suratensis* collected from Hamilton Canal, Negombo, Sri Lanka, were subjected to a hematological examination. The hematological parameters studied were total erythrocyte count, total leucocyte count, hematocrit, hemoglobin content, mean erythrocyte volume, mean erythrocyte hemoglobin content, mean erythrocyte hemoglobin concentration and differential leucocyte count. Results indicate that severely affected fish were anemic as shown by significant reductions in total erythrocyte count, hematocrit and hemoglobin content. In addition, the differential leucocyte counts of severely affected fish indicate a significant increase in the percentage of neutrophils. The anemic condition can be attributed to the hemorrhagic lesions that resulted in blood loss in the severely affected fish. Increase in neutrophils may be a result of local inflammation and tissue damage due to severe EUS lesions.

Introduction

Epizootic ulcerative syndrome (EUS) is a serious fish disease which has been spreading across South and Southeast Asia since 1980. The disease is characterized by large hemorrhagic necrotizing ulcers extending deep into the tissues on a wide variety of wild and cultured fish species, leading most invariably to death (Roberts *et al.* 1986; Lilley *et al.* 1992). Aetiology of the outbreaks of EUS remains a mystery. Although viruses, bacteria and fungi have been isolated, prior to 1994, there has been no conclusive evidence of the involvement of any particular organism as the primary pathogen (Roberts *et al.* 1986; Roberts *et al.* 1992; Lilley *et al.* 1992; Roberts *et al.* 1993). However, more recent studies consistently associate the fungus *Aphanomyces* with the disease (Roberts *et al.* 1994; Vishwanath *et al.* 1997).

The disease was first noted in Sri Lanka in 1987, around the lower reaches of the Kelani River. The disease spread very rapidly within a number of waterbodies, affecting over 20 species of freshwater and brackishwater food fishes in the South-Western Zone (Costa and Wijeyaratne 1989). Since then, the disease has recurred annually, affecting a variety of fish species in a number of waterbodies in the Dry and Wet zones. The Pearl Spot, *Etroplus suratensis* (family:Cichlidae) is one of the food fish affected by EUS in Sri