

VARIATION IN STRESS TOLERANCE OF TILAPIA YOLK SAC-FRY TO METAL STRESS: IMPLICATIONS ON EXTRAPOLATING LABORATORY TOXICITY TEST RESULTS TO FIELD.

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This paper highlights some of the difficulties in extrapolating results from standardized single species laboratory toxicity tests to the field in the development of ecotoxicological tests by referring to studies carried out by the authors. These studies were conducted to assess the inter-species and intra-species variability in tolerance capability of tilapia yolk sac-fry to cadmium and copper stress. The yolk sac-fry of substrate-spawning tilapia were more than an order of magnitude more tolerant to acute exposure to cadmium and copper than yolk sac-fry of mouth-brooding tilapia. The *Oreochromis niloticus* yolk sac-fry originating from small eggs were more tolerant to cadmium stress than larger conspecifics originating from large eggs. Similarly, *O. niloticus* yolk sac-fry near completion of yolk resorption (9-day and 12-day post hatch fry) were more tolerant to acute exposure to cadmium and copper than yolk sac-fry with adequate yolk reserves (3-day and 6-day post-hatch fry). In all cases tolerance capability to metal stress was correlated to the metabolic costs of yolk sac-fry.

Several implications of the observed results of this study for the generalization of toxic responses based on laboratory bioassays for natural populations are discussed.

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