

Poster #15

Effects of Masculinization on the Reproductive Physiology of Female Mosquitofish *Gambusia affinis*.

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Studies on environmental endocrine disruptors have primarily concentrated on chemicals with estrogenic effects. However, environmental androgens have also been documented. We are currently investigating the reproductive effects of exposure to androgens and the mechanisms through which androgens exert their effects in an effort to develop the mosquitofish as a model for endocrine disruption in the aquatic environment. Female *G. affinis* were masculinized through dietary administration of four concentrations (0.05, 0.5, 5, and 50 μg hormone/gram of food) of 17 α -methyltestosterone (MT) over a six-week period. Significant changes in fin ray morphology, an indicator of masculinization, occurred at the 5 $\mu\text{g}/\text{g}$ and 50 $\mu\text{g}/\text{g}$ levels ($p < 0.001$), with observable effects at the 0.05 $\mu\text{g}/\text{g}$ level. The gonadosomatic index (GSI) increased slightly between the controls and the 0.05 to 5 $\mu\text{g}/\text{g}$ levels followed by a significant decrease at the 50 $\mu\text{g}/\text{g}$ level. The increase at lower levels may be indicative of aromatization of MT into excess estrogen. Preliminary experiments revealed the absence of vitellogenin at the 50 $\mu\text{g}/\text{g}$ level. Some potentially bioactive constituents of paper mill effluent have been identified and we intend to utilize exposure to MT as a positive control in future experiments investigating the masculinizing affects of these compounds. This work was supported by EPA Grant R826130-01-0.