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Assessment of the Endocrine Toxicity of the Fungicide Prochloraz Using the Larval Amphibian Growth and Development Assay

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Prochloraz is a broad spectrum fungicide that acts by inhibiting ergosterol biosynthesis in target species. Toxicity results in non-target vertebrate species suggest this toxicant acts as an endocrine disruptor that inhibits aromatase, the enzyme responsible for the conversion of androgens into estrogens. We used the Larval Amphibian Growth and Development Assay, a Tier II test in the US EPA's Endocrine Disruptor Screening Program to examine the effects of prochloraz on the model amphibian species, *Xenopus laevis*. Larval *X. laevis* were exposed from just after fertilization until nine weeks after completion of metamorphosis in a flow-through diluter system. Exposed animals were assessed at completion of metamorphosis and at the end of the exposure for endocrine-related endpoints as well as general measures of toxicity. No effects on mortality, growth, or metamorphosis times were observed. Using genetic sexing, no sex reversals among exposed individuals were observed. Both females and males had reduced liver somatic indices at exposure concentrations of 60 and 180 µg/L respectively. Exposure to prochloraz concentrations of 60 µg/L and above resulted in very low, but significant induction of circulating vitellogenin. Observed effects indicate that prochloraz has some endocrine activity, however, these effects are different from those observed with the pharmaceutical aromatase inhibitor, fadrozole, suggesting that prochloraz is eliciting these effects with a different mode of action. In addition, these results illustrate the utility of the Larval Growth and Development Assay to evaluate endocrine toxicity of toxicants. *This abstract does not necessarily reflect US EPA policy.*