

The Sublethal Effects and Bioaccumulation of 17α -Ethinyl Estradiol in *Lumbriculus variegatus*

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Session description: The threat of freshwater scarcity is a global concern. With less than 1% of Earth's total water available for human consumption, there has been concern about toxic contaminants affecting available freshwater sources. Ethinyl estradiol, a synthetic drug present in multiple water sources, was analyzed for its effect on freshwater invertebrates.

Abstract: Freshwater sources are subject to contamination from toxic compounds and other harmful materials through improper sewage cleanup and pollution. Ethinyl estradiol, a synthetic, steroidal estrogen used in contraception, is present in varying concentrations across freshwater sources worldwide. Ethinyl estradiol (EE) is also classified as an endocrine disruptor that is known to interfere with the endocrine system. Endocrine disruptors can create adverse effects on bodily systems and have been found to affect behavioral patterns, enzymatic activity levels, and estrogen receptor levels. Preceding data has found that EE exposure leads to an increase in mortality, a decrease in offspring, and changes in reproductive morphology among other freshwater invertebrates.

The objective of this study was to observe the sublethal effects and bioaccumulation of ethinyl estradiol in *Lumbriculus variegatus*. Data collection on experimental endpoints, including reproduction rate, segment regrowth of *L. variegatus*, have been collected. The bioaccumulation of EE within *L. variegatus* was observed through sediment tests and an ethinyl estradiol ELISA. The data collected from this experiment would contribute to information available on the effects of low-dosage endocrine disruptor concentrations on freshwater organisms. The effects of EE and its bioaccumulation could be extrapolated to include bioaccumulation of EE in organisms of higher trophic levels, including vertebrates.