Effects of triclosan on *Drosophila melanogaster* female fecundity and gene expression

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Triclosan is a broad spectrum bactericide that is used in many consumer products and found ubiquitously throughout the environment. Recent research suggests that triclosan may act as an endocrine disruptor in humans, negatively affecting reproduction and development. This study evaluated the effects of triclosan on female fecundity and *zerknullt* (*zen*) expression using the model organism *Drosophila melanogaster.* Triclosan (2000 ppm) was found to decrease female fecundity, which was determined by measuring daily median egg production over a 10-day period. However, this decrease was not statistically significant. Contrary to expectation, egg production generally increased over time, indicating a negligible effect due to bioaccumulation. In addition, egg production in the acetone control group was significantly lower than in the triclosan treated group, despite the fact that the acetone concentration in both groups was identical; this indicates a potentially antagonistic interaction between the acetone and the triclosan. Gene expression was analyzed by quantitative reverse transcription PCR (qRT-PCR) of total RNA extracted from fly ovaries. The target gene *zen* was upregulated in triclosan exposed ovaries, but not at a statistically significant level. The upregulation was slightly more pronounced in the acetone treated ovaries, which is consistent with the results from the fecundity analysis; however, this was also not statistically significant. Future studies should repeat the fecundity analysis to achieve consistent egg production results, employ additional qRT-PCR trials to obtain statistically significant results, and further investigate the interaction between acetone and triclosan.