# Examining triclosan-induced potentiation of the estrogen uterotrophic effect

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Triclosan (TCS), a widely used antibacterial, has been shown to be an endocrine disruptor. We reported previously that TCS potentiated the estrogenic effect of ethinyl estradiol (EE) on uterine growth in rats orally administered 3 µg/kg EE and TCS (2 to 18 mg/kg) in the uterotrophic assay, whereas TCS alone had no effect. We further characterized this potentiation by evaluating the effect of co-exposure with lower doses of EE (0.125 to 2 µg/kg) that are comparable to the concentrations in hormone replacement therapies. We found that TCS correspondingly potentiated the uterotrophic effect (both in uterine weight and epithelial cell height), but at significantly lower doses of EE (LOEL = 0.25 µg/kg). In the current study, we evaluated the effects of TCS with a xenoestrogen in the uterotrophic assay to determine whether the effect is specific to only co-administration with EE. Female rats were exposed to 100 and 200 mg/kg of nonylphenol (NP), a pesticide with ER agonist activity, in addition to an EE-treated positive control group. NP induced a significant increase in uterine weight, but to a lesser extent than the EE-induced response. Animals co-treated with TCS and NP also had a significant increase in uterine weight compared to vehicle controls, but this difference was not significantly different from NP alone. To examine the cellular mechanism by which TCS potentiated the EE uterotrophic effect, we conducted an *in vitro* estrogen receptor (ER) transactivation assay, which revealed that TCS alone does not activate the ER. Cotreatment of TCS with estradiol did not alter the maximal response suggesting that TCS does not antagonize nor potentiate the ER. These results provide evidence that the potentiation of the estrogenic response by TCS is not at the level of the ER. Further studies are needed to evaluate the role of TCS in altering estrogen metabolism. *This work does not necessarily reflect EPA policy.*