

Effects of Extended Exposure to the Antibacterial Triclosan in the Adult Female Rat

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Triclosan (TCS), an antibacterial, has been shown to have endocrine disrupting activity in the rat. We reported previously that TCS advanced puberty in the female rat in the female pubertal assay and potentiated the estrogenic effect of ethinyl estradiol (EE) on uterine growth in weanling rats acutely exposed to EE and TCS in the weanling uterotrophic assay. In the female pubertal study, we observed a decrease in serum thyroxine (T4) without concomitant changes in T3, TSH or thyroid histopathology. Therefore, the purpose of our current study was two-fold: 1) to assess changes in adult female reproductive function, including evaluating pituitary and steroid hormone levels, reproductive tissues and estrous cyclicity and 2) to assess thyroid hormones, thyroid weight and histopathology following an extended exposure to TCS. Adult female Wistar rats were exposed to vehicle control, positive control EE (1.0 ug/kg), or TCS (2.3, 4.7, 9.4, and 37.5 mg/kg) daily by oral gavage for in adult female Wistar rats. Estrous cyclicity was assessed daily by vaginal cytology throughout the dosing period. Although there was no difference between the controls and the EE females on cessation of estrous cyclicity or reproductive senescence, the controls became persistent diestrus by and the EE females became predominately persistent estrus. Extended exposures to TCS (ranging from 2.35 to 37.5 mg/kg) did not cause significant changes in estrous cyclicity, either in timing or pattern of reproductive senescence, in at the later part of the study. In addition, there was no difference in reproductive hormone levels, or uterine epithelial cell height as compared to controls. When thyroid status was assessed at the end of the study, serum T4 was significantly decreased in TCS 9.4 and 37.5 mg/kg groups with no effect on serum T3, TSH, thyroid tissue weight or histology. Therefore, this was the first study to show that there was no concomitant increase in TSH or change in thyroid histopathology following an extended oral exposure to triclosan. It was also important to demonstrate that an extended exposure to TCS does not significantly alter the timing of reproductive senescence, even though triclosan has been shown to enhance estrogen activity in shorter term studies. *This abstract does not necessarily reflect EPA policy.*