

17th International Conference on

Environmental Toxicology and Ecological Risk Assessment

36th International Conference on

&

Environmental Chemistry & Water Resource Management

September 24-25, 2018 | Chicago, USA

Sex hormones disruption after prenatal and postnatal exposure to chlordimeform in female and male rat's prefrontal cortex

Javier Del Pino¹, Jose Manuel Garcia¹, Paula Moyano¹, Maria Jesus Diaz¹, Gloria Gomez¹, Maria Jose Anadon¹, Margarita Lobo¹, Jimena Garcia², Matilde Ruiz¹ and Maria Teresa Frejo¹

¹Complutense University, Spain

²Alfonso X University, Spain

Chlordimeform, as well as other formamidine pesticides, has been described to induce permanent sex- and region-dependent effects on the development of monoaminergic neurotransmitter systems. The mechanisms that induce these effects are not known, but it has been suggested that these effects could be related to monoamine oxidase (MAO) inhibition. However, chlordimeform is a very weak MAO inhibitor, which suggests that other mechanism should be involved. In this regard, formamidines, in general and chlordimeform, in particular, alter the serum levels of steroid hormones, which regulate the expression of enzymes that mediate the synthesis and metabolism of monoaminergic neurotransmitters. Therefore, an alteration of these hormones in the brain could mediate the effects observed. In order to confirm that the formamidines produce sex hormones disruption in the brain, we evaluated, in the frontal cortex of male and female rats, the effect on the levels of testosterone and estradiol at 11 days of age after maternal exposure to chlordimeform (5 mg/kg body weight). Chlordimeform induced a significant decrease in testosterone and estradiol levels in the prefrontal cortex of rats at 11 days of age. We observed sex interaction with treatment in the content of T and E2. The present findings indicate that after maternal exposure to formamidines, in general and chlordimeform, in particular, a sex hormones disruption in the frontal cortex is induced.

Biography

Javier Del Pino received his PharmD degree at the University Complutense University of Madrid in 2004. He has two Masters in Sciences 2009 and 2010. He specialized in neurotoxicology and neurodevelopmental toxicology and received his PhD in Toxicology in 2009. In 2010 he worked in Institute of Health Carlos III in the National Center of Environmental Health. From 2010 to 2012 he was Associated Researcher at University of Massachusetts (UMASS) working in Sandra Petersen's Lab in a National Institute of Health (NIH) project on developmental effects of TCDD endocrine disruptor on sexual differentiation. In 2016 he got a position as Associate Professor of Toxicology at the Complutense University of Madrid.

jdelpino@pdi.ucm.es

Notes: