Effects of Environmental Contaminant on Anxiety-like Behavior in Rodents

Roman, Cesia (School: CROEM HS)

The herbicide glyphosate, N-(phosphonomethyl) glycine, is a widely used active ingredient in Roundup herbicide that controls broadleaf weeds, grasses, and aquatic plants. It is known that this contaminant has increasing concerns worldwide about the potential direct and indirect health effects of the large-scale use of glyphosate (Van Bruggen, A. H. C., et al., 2018). The effects that it could induce in grooming behavior are still unknown. Hence, this study aims to indicate if there is a significant effect on the anxiety-like behavior in rats, that are consuming glyphosate at its approved concentration scale by the EPA (0.7mg/L). For the study, four male rats on each variable group were used. After chronical exposure of glyphosate on animal feed at 400 ppm of the experimental group, both groups were videotaped from behavioral procedures such as open field test (OFT) and fear condition chamber (FCC) and then measure the time spent in grooming. The hypothesis was rejected, because it was proven that glyphosate did not portray a significant statistical significance determined by p value. The results indicated p=0.200055 in fear conditioning and p=0.313217 in open field. The alternate hypothesis was rejected, because it was proven that glyphosate did not induce a statistical significance determined by p value. With this finding, the concentration of glyphosate consumption approved by EPA can indicate that it does not alter significantly the grooming.

Awards Won: