

PRIYA ARUMUGANATHAN#, PREETHA S. PHILLIPS, COLLEEN J. NOLAN, and CAROL Z. PLAUTZ, Department of Biology, Shepherd University, Shepherdstown, WV, 25443. **Assessment of steroidogenic pathway components following exposure of *L. palustris* to the herbicide roundup or its components.**

We are analyzing the effects of Roundup and its components on the pond snail, *Lymnaea palustris*. Roundup is a commonly used herbicide composed of the chemicals Glyphosate, POEA (a surfactant), and Diquat Dibromide (DD). By testing the effects of Roundup and its components on a hermaphroditic organism such as *L. palustris*, one can observe significant alterations in reproductive output as well as shifts in hormone levels or steroidogenic pathway components following exposure to these chemicals. Preliminary results from our laboratory showed chronic Roundup treatment yielded significantly decreased testosterone levels as well as altered estradiol and progesterone levels. Additionally, chronic treatments reduced expression of StAR enzyme, especially within the ovotestis. In the current study, snails (N=60) were chronically treated in solutions of pond water supplemented with RoundUp, DD, POEA, or Glyphosate. During the treatment period, snail fecundity and mortality were noted on a biweekly basis for each treatment group. After the treatment period, the kidney, gonadodigestive complex, and brain were harvested from each snail to analyze the expression of StAR, and p450AROM enzymes via Western blotting. Standardized amounts of protein from control and treated animals were compared during the analysis for each organ. In a concurrent study, testosterone, cortisol, and estradiol levels were tested at the three and six week marks by enzyme immunoassay. A significant decrease in fecundity was observed in snails in all treatment groups. Shifts were observed in both hormone and protein levels when comparing the results of the treatment groups to the control group.