



**CALIFORNIA SCIENCE & ENGINEERING FAIR  
2019 PROJECT SUMMARY**

<b>Name(s)</b>  <b>Mumtaaz Elmi</b>	<b>Project Number</b>  <b>J2107</b>
<b>Project Title</b>  <b>Can Herbicides Have an Effect on a Planarian Nervous System?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives</b> The purpose of this experiment is to test the effect of commonly used herbicides to see whether or not they cause neurotoxicity on planarian flatworms, which have a very similar nervous system to humans.</p> <p><b>Methods</b> The materials that I used in my experiment were: 200 Planarian flatworms, 20 petri dishes, pipettes, timer, ruler, light, weed killers (Roundup, Pyrethrin, &amp; Spectracide), and worm food (liver).</p> <p><b>Results</b> The results that I found were that all the worms became paralyzed almost instantly in all concentrations after the first 5 days. Roundup was the herbicide that paralyzed the worms the fastest while the other 2 herbicides, Pyrethrin &amp; Spectracide, took a little bit more time to make all the worm's paralyzed. Although, they took more time, all the worms in all herbicides were paralyzed by the end of 5 days. The results show that on the 6th day worms began dying. Again, Roundup was the fastest herbicide to make all the worms dead.</p> <p><b>Conclusions</b> In conclusion, my hypothesis is proven correct. Prolonged exposure to herbicides does have an effect on the Planaria. And this could have an effect on whether or not a human will have some sort of neurological disease in the future. Also the herbicide Roundup did have the most effect on the worms.</p>	
<b>Summary Statement</b>  My experiment was about testing whether or not herbicides can cause damage to a Planaria nervous system	
<b>Help Received</b>  I did not get any help, I performed all of my experiments by myself. All my mentor did was review my results and my research.	