



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

Name(s) Krina Ghadia	Project Number S2105
Project Title Running a Bioessay: Sodium Toxicity's Effect on Lactuca sativa Germination	
<p style="text-align: center;">Abstract</p> <p>Objectives Determine the concentration of sodium that become toxic Lactuca Sativa seed germination.</p> <p>Methods Germinated Lactuca Sativa in petri dishes with varying moles of sodium. Allowed germination to occur for 5 days to view effects on growth.</p> <p>Results The embryonic root of the germinated seeds were measured. The 0.175 mole concentration inhibited and ultimately stopped germination overall through the process of sodium toxicity and osmotic effect.</p> <p>Conclusions A 0.175 mole solution of sodium was ultimately toxic to the Lactuca sativa seeds in the germination process, meaning that sodium toxicity, which requires a lower concentration to take effect, had a lower impact on the inhibition of growth as compared to the osmotic effect which needs a higher concentration to take effect. This means that Lactuca Sativa can still thrive and be cultivated in areas with high sodium levels as it has a high tolerance to sodium toxicity.</p>	
Summary Statement I determined the concentration of sodium needed for sodium toxicity and the osmotic effect to inhibit Lactuca Sativa germination.	
Help Received I did not receive any help as I designed, executed, and collected the data from my experiments on my own.	