



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

Name(s) Zaighum Nagra	Project Number J2210
Project Title The Effect of Corn Silk Extract on Neuronal Regeneration	
Abstract Objectives This study examines effective dosage of corn silk (<i>Zea mays</i> Linnaeus) aqueous extract on neuronal regeneration. Methods Using planaria (<i>Girardia tigrina</i>) as a model for neuronal regeneration, 250 mg/mL corn silk aqueous extract (CS) is tested for its effect on neuronal regeneration. Same concentration of <i>Astragalus membranaceus</i> extract is used as positive; and water as normal controls. Three doses of 1, 2 and 3 mL CS extract are tested in triplicate in three separate trials. Results Dissected planaria heads in 2 mL CS grew 4.9% faster than 1 mL extract and water. The locomotive velocity of 2 mL CS was also significantly (15.3%) higher than 1 mL, using paired t test at $P=0.01$. The differences between 2 and 3 mL were not significant. Conclusions Faster growth rate and higher locomotive velocity of regenerating 2 mL planaria, combined with microscopic evidence of faster progressing development of neoblasts show that 2 mL dose is most effective for neuronal regeneration. The hypothesis proved to be supported by the results. CS contains proteins, vitamins, minerals, flavonoids, terpenoids and other antioxidants. The bio-active constituents confer neuroprotection and promote memory, learning, cognition and regeneration by inhibiting neuronal apoptosis.	
Summary Statement Effective dose of CS determined in this study may be used for neuroprotection and neuroregeneration in neurodegenerative diseases such as Alzheimer s and Parkinson s	
Help Received Initiated, discussed and completed the project at the UCLA-CURE Digestive Diseases Research Center laboratory under the supervision of Lixin Wang, MD, PhD	