



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

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Project Title Variation of DNA Yield from Different Plant Species: GMO vs Organic vs Non-GMO	
Abstract Objectives Our objective is due to altered protein and DNA sequence in GMO vs Organic/NonGMO plant, there will be change in yield of the DNA extracted and measured. Methods Different types of plant types/species were used in this experiment, such as Potato, banana and strawberries in form of GMO, Non-GMO and Organic. Four samples of 10gm of each type of plant species were collected for DNA extraction. Standard DNA extraction kit Innovative science by Aldon Corporation was used. After DNA extraction, the precipitation was measured with a ruler under UV Neon light. Microsoft Excel was used to calculate mean and ANOVA was used to test if there is significant statistical difference in the yield of extracted DNA . Results 1.Organic potato showed highest yield as compared to all other plant species and types used in this experiment. 2.GMO potato yielded less DNA as compared to its Organic counterpart. 3.Comparable amount of extracted DNA were observed from GMO Potato, Organic Strawberry, Non-GMO Strawberry, Non- GMO Banana and Organic banana. 4.DNA was present in all types of plant species tested and looked the same. Conclusions 1.In our study we found that the DNA yield of organic potatoes was more than that of the GMO potatoes. 2.The DNA yield of the non-GMO species showed no significant difference from its Organic counterpart. Therefore, Organic foods have a higher DNA yield than GMO, and non-GMO foods have a similar yield to Organic food. 3.Anova showed no statistically significant difference in the DNA yield in GMO, non-GMO and Organic foods. 4.Our analysis was done by measuring visual thickness of DNA precipitation with UV neon lamp. Another method is extracting precipitated DNA by a centrifuging machine and measure with Spectrophotometer. More samples could be compared with GMO for additional validation. 5.The future direction is to conduct protein expression analysis using rt PCR or ELISA immunoassay. Further study the Health effects like allergic and immunologic response of protein expressed in GMO vs Non-GMO to human and livestock.	
Summary Statement VARIATION OF DNA YIELD FROM DIFFERENT PLANT SPECIES GMO vs NON-GMO vs ORGANIC.	
Help Received Mrs Ginger Byrd- Project Advisor.	