



**CALIFORNIA STATE SCIENCE FAIR  
2017 PROJECT SUMMARY**

<b>Name(s)</b> <b>Melina S. Ghodsi</b>	<b>Project Number</b> <b>J1117</b>
<b>Project Title</b> <b>Reducing Volatile Organic Compounds: Plants vs. Filter</b>	
<b>Abstract</b> <b>Objectives/Goals</b> In my experiement, my objective was to reduce the health risks caused by volatile organic compounds by testing to see the most effective method of reduction. <b>Methods/Materials</b> VOC detector (General Tools VOC08 Volatile Organic Compounds Data Logger), four bromeliad plants, Cutex Regular Nail Polish Remover (8 fl. oz), and filter (spt ac-2062 tower hepa/VOC Air Cleaner with Ionizer). After three hours of nail polish remover open in a room, four bromeliad plants were placed in the room. Measure with VOC detector every hour for three hours the amount of VOC in the room. Repeat procedure with filter instead of bromeliad plants. <b>Results</b> After three hours of the nail polish remover in the room by itself, the VOC detector showed "maximum" which is above 50 parts per million of volatile organic compounds. Then after three hours of having he plants in the room, the volatile organic compounds went down to 4.70 parts per million. For the filter the VOC measurement was 0.79 parts per million after three hours. The margin between the amount of VOC each method reduced is slim. Therefore, I still recommend using a bromeliad plant because the filter has many disadvantages including much more expensive, it has an irritating noise, it consumes electricity, and it is not environmental. <b>Conclusions/Discussion</b> Vadoud Niri concluded that bromeliad plants are an effective plant that reduces volatile organic compounds from the air. After doing more research on these plants, my research supported Niri's conclusion. Since science is about using previous knowledge from other scientists and expanding on it, I used Vadoud Niri's study to elaborate on reducing volatile organic compounds from the air. Every day, people use household items such as cleaning supplies, paint, and nail polish remover. I found that volatile organic compounds are very detrimental to our health. Reducing volatile organic compounds is especially important because people who work in nail salons are exposed to volatile organic compounds every day and this can lead to long term health affects such as liver disease, asthma, and even cancer! Other costumers in nail salons can develop short term health affects such as headaches, nausea, and allergic reactions. In this experiment, I created awareness to this problem and I reduced these harmful toxins almost completely with two effective methods of reduction.	
<b>Summary Statement</b> I reduced harmful volatile organic compounds with bromeliad plants and a filter but because the filter has many disadvantages, the plants are more effective.	
<b>Help Received</b> I used Vadoud Niri's study from the State University of New York at Oswego as background information that showed me that houseplants can reduce harmful toxins from the air. My parents contributed to the cost of all the equipment. Mrs. Stephanie Conklin was also involved with my project.	