



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Kyle Groves; Michael Wintermantel	Project Number S1509
Project Title Preservation of Plant Viruses Using a Food Dehydrator	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals We wanted to determine if a food dehydrator can be used to preserve plant viruses for use in future experiments and for transport of virus samples from remote areas of the world.</p> <p>Methods/Materials Plant leaves, each infected with one of 7 different plant viruses, were dried in a food dehydrator. Dried leaf tissue was used to inoculate test plants with the viruses along with controlled inoculations using fresh infected tissue to see if dehydrated viruses were still infectious. Viral RNA was extracted from plants and used in reverse transcription-polymerase chain reaction (RT-PCR) to determine if the viruses could be used for molecular biology studies after dehydration.</p> <p>Results Most plants inoculated with dehydrated virus-infected plant tissue showed disease symptoms comparable to those inoculated using fresh virus infected tissue in replicated experiments. There were two exceptions, which produced only 75% of control infection rates when dehydrated tissue was used for inoculation. We extracted total nucleic acid and ran RT-PCR on two viruses, and found both amplified equally well when purified from dehydrated or fresh infected plant tissue.</p> <p>Conclusions/Discussion Using a food dehydrator for virus preservation results in minimal loss of virus infectivity compared to infected tissue collected from live plants, and is a very good method for storing viruses long-term. The method would be inexpensive and useful for transporting viruses from remote areas of the world that have limited availability or funding for high tech equipment such as a freeze dryer.</p>	
Summary Statement We wanted to determine if a food dehydrator can be used to preserve plant viruses for use in future experiments and for transport of virus samples from remote areas of the world.	
Help Received We used equipment and supplies in the Plant Virology Lab at the USDA-ARS in Salinas, CA and received training and supervision from Dr. Bill Wintermantel and Ms. Laura Hladky.	