



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Victoria B. Ko	Project Number 22514
Project Title Orchid Tissue Cultures: Cultured with Juice?	
Abstract Objectives/Goals The goal of this project is to discover if juices are effective in the culturing of orchid tissue cultures (meristem) when placed in pure chemical mediums. The second goal of my project is to observe which type of orchid; Cymbidium or Phalaenopsis is the best in obtaining tissue cultures. Methods/Materials The goal of this project is to discover if juices are effective in the culturing of orchid tissue cultures (meristem) when placed in pure chemical mediums. The second goal of my project is to observe which type of orchid; Cymbidium or Phalaenopsis is the best in obtaining tissue cultures. Results The results I got were very interesting. It seems the age-old method of simply using coconut milk is not enough to successfully culture tissues. I found out that the best medium to use is actually the medium that had both orange juice and coconut milk. I also observed that it seems Phalaenopsis tissue, especially Phalaenopsis flower columns, and pollen are the ones that stood healthiest. Although this does not mean that they are necessarily the best tissue though. It seems these tissues are taking longer to multiply than those that are strictly meristematic cells. Conclusions/Discussion I have concluded that medium I used (Phymax Orchid Multiplication Medium) is not enough to culture specific orchid tissue cultures. More additives are needed. And in my experiments, juices can fulfill those needs. I expected this to be the case, and it was. Second of all, I concluded that perhaps Phalaenopsis tissue could be the easiest tissue to culture considering the fact that they stay so strong and healthy even after being in the test tubes for long periods of time ranging from two weeks to a month. I did not expect Phalaenopsis to be the better tissue; I expected Cymbidium tissue to be the better tissue. The reason I thought this is because of the difference in the survival skills of both of these plants. Cymbidiums are stronger when it comes to surviving in the winter, and it can survive in harsher weather. However the strength and appearance of the Phalaenopsis tissue out ran the Cymbidiums by a slight margin.	
Summary Statement Orchid Tissue Cultures show that they respond well to organic juice additives, and the best tissue to use for orchid tissue cultures will have to be Phalaenopsis tissue.	
Help Received My father helped me understand the process of creating tissue cultures, and he was the one who supplied me with all of the equipment.	