



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Daya Raman</b>	<b>Project Number</b> <b>S0419</b>
<b>Project Title</b> <b>Investigation of Delayed Ripening in Climacteric Fruits</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Good health requires that we eat high quality foods and produce. Fresh Produce and fruits are an important source of minerals, vitamins and fiber. To prevent fruits from rotting before they reach consumers, many farmers and food companies typically either pick the fruit while green and artificially ripen it. In this study, we examine the ripening in Climacteric fruits- fruits that are picked before they are ripe.</p> <p><b>Methods/Materials</b> The climacteric fruits studied involved two groups of Apples, two groups of Bananas and other produce such as Pear, Tomatoes, Lime and Broccoli. In order to study the ripening process in a controlled manner, several sets of desiccators were used so that an ethylene generating station (containing apples) and a receiver station (containing the fruit whose ripening was to be studied) could be examined in a coupled manner. Fruit ripening was examined over several hundred hours using color analysis and texture, weight loss and refractometer measurements.</p> <p><b>Results</b> The experimental observations in this investigation focuses on the post-processing methods used for climacteric fruits and is summarized in the following points: (a) Examination of ripening in climacteric fruits and other produce show that there are changes in the color, weight, Refractometer Brix values and appearance with time (b) the weight loss depends on the type of fruits and typically varies in the range from 5-80% - the weight loss likely due to loss of water as a result of respiration, (c) Ripening is accelerated in the presence of Apples # an ethylene generator. d) Ripening in Bananas and Tomato, two climacteric fruits, is accelerated in the presence of Ethylene (e) Environmental conditions of temperature and humidity influence ripening. (f) #White Mold# formation and #Degreening: is observed in Citrus fruits in the presence of Ethylene (g) Survey of tomatoes shows that they are of less than average quality in terms of Total soluble solids (Refractometer Brix) and sugar content. .</p> <p><b>Conclusions/Discussion</b> The conclusion from this study is that fruit ripening is accelerated in the presence of ethylene. Some concern is raised regarding the post-harvest ripening methods used currently regarding nutritional value. Global distribution of produce and post harvest treatments in climacteric fruits may need reassessment taking into account nutritional aspects of produce.</p>	
<b>Summary Statement</b> Fruit ripening is accelerated in the presence of ethylene but current ripening methods needs re-examination taking public health factors into account.	
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