



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

Name(s) Lea Nepomuceno	Project Number J0513
Project Title Different Percentages of L-Ascorbic Acid Affecting the Percutaneous Absorption of Frozen Pig Skin Tissue	
<p style="text-align: center;">Abstract</p> <p>Objectives Vitamin C has numerous benefits to human bodies such as reducing the risk of chronic diseases and battling high blood pressure, however one of the most well-known is being critical to skin cancer prevention. My objective was to find the l-ascorbic acid % which results in a 5.5 PH level when absorbed by the skin. I hypothesized that the 15% formula would work the best since it was the most commonly used percent in skin products. In my testing I used l-ascorbic acid powder and distilled water as a base in order to make the formulas, and then applied the formula to pig skin tissue. Every hour I tested the skin for PH level for 7 hours. The results showed the 15% formula produced the desired 5.5 PH level. The 10% formula produced a 4.9 PH (11.5% below a 5.5 PH) level and the 20% formula produced a 6.1 PH level (10.3% above the desired PH level). The pig skin samples with the 10% formula applied had very soft skin which showed that there was not enough absorption, the pig skin samples with 20% formula applied had very dry skin which showed that it was irritated by the formula, however the pig skin samples with 15% formula was firm which demonstrated perfect absorption.</p> <p>Methods fresh pig skin tissue,PH strips, Notebook, L-ascorbic acid powder, PH skin meter 8 by 12 plastic tray with dividers, Teaspoon measure cups, Knife, Distilled Water, Three glass beaker, Funnel, Amber glass dropper,Glove, Plastic spoons Labels, Timer</p> <p>Results Not all pig skin samples had the same PH levels per every check due to the various textures of the pig skin. However the averages of the PH levels resulted with very similar averages. The 15% l-ascorbic acid formula resulted to be the best-performing l-ascorbic acid formula in my experiment. The 10% formula left the pig skin tissue with a lack of absorption which was shown when the skin tissue had a Ph level below 5.5 (4.9) , the 20% l-ascorbic acid formula dried the pig skin tissue out which was shown when the PH level of the pig skin tissue was above 5.5 (6.1), and the 15% l-ascorbic acid formula formula left just-right results were the skin was well absorbed but to an extent to were it didn t dry out the pig skin tissue and the PH level of the skin was exactly 5.5.</p> <p>Conclusions My goal was to find the most effective l-ascorbic acid formula on pig skin tissue. I tested a 10% l-ascorbic acid solution, a 15% l-ascorbic acid solution, and a 20% l-ascorbic acid solution. Based on my research on l-</p>	
Summary Statement My project is about the benefits of different percentages of l-ascorbic acid (10%,15%,20%), and it's effects onto pig skin tissue.	
Help Received My dad helped me cut the pig skin tissue and my mom helped me to calibrate the PH meter. I performed the rest of the experiment alone.	