

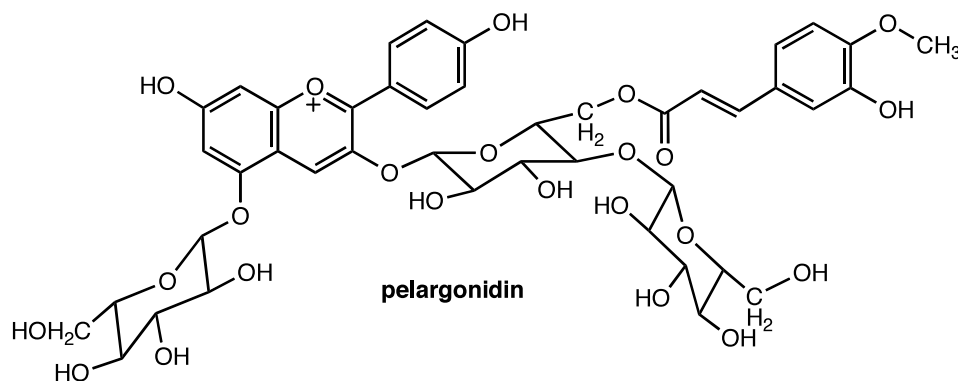
Name _____

Slayter Box _____

(All work, including graphs, is to be solely your own. Points for a single lab will be split among collaborators.)

Analysis:

1. Prepare and attach a plot of your data similar to the first plot shown in the lab handout. In other words, make a plot that overlays the three spectra you obtained. Make the traces different colors and annotate your graph appropriately.
2. Relate your results to the pattern of absorbed and observed color defined by the color wheel. Is the color wheel pattern confirmed by your results?
3. The pigments in red cabbage belong to a class of compounds called anthocyanins, which are valued by nutritionists for their antioxidant behavior. The structure of the anthocyanin you are observing is shown below. What accounts for the water solubility of pelargonidin?
4. Identify on the structure the phenols that account for the antioxidant behavior of pelargonidin.
5. Structures that absorb UV-vis light are described as chromophores. On the figure below, draw a box around each of the two chromophores in pelargonidin.
6. Use a source from the internet to identify another source of anthocyanins (anthocyanins) and the structure of another anthocyanin besides the one you are studying. (**attach separately**)
7. Circle the pelargonidin protons that are most likely to be lost as the pH is increased.



8. Notice that resonance stabilization of the conjugate base that forms may involve several pi-bonds. Propose two resonance structures for the chromophores after they are deprotonated. Draw these structures using ChemDraw and attach to this report.
9. Estimate the energy (in kJ/mol) of the HOMO–LUMO gap for each of the three pigment states observed. (Show your work and answers below.)