Dixon Springs Intern Program

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Ellagic acid and antioxidant content of berry-based wines
Background

- Alcoholic beverages part of the human diet for thousands of years
- Drank by nobility in Egypt
- Once considered one of the safest beverages
Ellagic acid is a phytochemical.
Ellagic acid is common during wine production.
Form sediments at bottom of product during fermentation.
Causes problem.
Ellagic Acid

- Phytochemical = plant chemical
- Common in raspberries, strawberries, blackberries, etc.
- Has some anti-cancer properties
Working Hypothesis

- Temperature will have an effect on the formation of ellagic acid in berry-based wines
Main Objective

- To determine the effects of temperature on ellagic acid formation

Supporting Objectives

- To determine the weights of blueberries and blackberries needed
- To determine the sugar content of the berries
- To determine the total polyphenol content of the berries
- To determine the amount of residual sugar in the wines produced
Required Equipment & Supplies

- Fermentation press
- Carboy
- Tubs with lids
- Cooler
- Refractometer
- pH meter
- Titration setup
- Sugar
- Pectic Enzyme
- Potassium Metabisulfite
- Yeast and Nutrient
- Wire Mesh Strainer
- Plastic Funnel
Equipment
Timeline

- **Weeks 1 and 2**: Become familiar with the workplace; Harvest berries (if applicable)
- **Week 3**: Begin initial analysis of berries: sugar content, polyphenol content; Freeze berries
- **Week 4**: Begin pre-fermentation preparations and divide samples into lots; Begin fermentations
- **Week 5**: Room temperature fermentation completed; Check on cool temperature fermentation
Timeline Continued

- **Week 6**: Check on cool temperature fermentation; Rack room temperature wine
- **Week 7**: Cool temperature fermentation completed; Rack cool temperature wine
- **Week 8**: Begin post-fermentation analysis on wine samples
- **Week 9**: Finish post-fermentation analysis
- **Week 10-11**: Work and finish paper
Outcomes

- Unique berry-based wine
- Helping wineries in southern Illinois
Deliverables

- Unique berry-based wine
- Data for ellagic acid formation
- Comparison of temperatures for fermentation
- Paper on the state of the art of the wineries in southern Illinois
- Paper on ellagic acid in berry-based wines
- Presentation at the undergraduate symposium in the spring
References


- [http://www.cancer.org/docroot/ETO/content/ETO_5_3x_Ellagic_Acid.asp](http://www.cancer.org/docroot/ETO/content/ETO_5_3x_Ellagic_Acid.asp)