**Goal:**

To determine the degree to which the headspace of blueberry juice is altered or affected when blueberry juice is inoculated with species of bacteria known to alter the host preference behavior of spotted-wing drosophila (*D. suzukii*).

**BAC and BLUE to date:**

1. Method development
   1. Microbiological Sterile technique
   2. Bacteria culture, growth, and vessel
   3. SPME fiber selection
   4. Vent, P, and E time determination (vent= 10s, P=10m, E=5)
2. Bacteria glycerol stocks on hand -80C freezer
   1. Bacillus Subtillus, Pantoe Agglomerans, Enterobacteria sp, Bacillus amloliquefacians, Frigirobactrium faeni
3. VOC collected by HS-SPME, separated by GC-MS, at 2 hours, 24 hours, and 48 hours after microbe inoculation into fruit juice

**Status:**

1. Bacteria inoculation and data collection
   1. Pantoe Agglomerans (Attractant microbe)
   2. Frigirobactrium faeni (repellent microbe)
2. Visualizing Data with PCoA

**Concerns:**

1. Fruit [blueberry] juice is too “smelly” and differences in VOC profile of bacteria inoculated fruit juice could over shadowed

**Proposed Actions:**

1. Use data analysis to confirm or deny concern 1
2. Revisit methodology and work towards diluting the VOC profile of the fruit juice
   1. Replicate completed trials using dilute fruit juice
      1. Dilutant: Agar, Broth, and, Saline
      2. Exp design: dilutant, dilutant + fruit juice, dilutant + bacteria, dilutant + bacteria + fruit juice + bacteria

**Bac and Blue Events Timeline**

1. Jan 28, 2019 – Feb 4, 2019: Setup data tables in excel
   1. Export MS data into Excel
   2. Reconcile RT
      1. Use the sample with the most peaks as a reference
      2. Match retention times from other samples to the reference sample

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | JTB-E02-191-09 | | JTB-E02-191-06 | | JTB-E02-191-10 | |
|  |  |  |  | 48CTRL01 | | 48BLANK01 | | 48EMPTY01 | |
|  | Qual | Library/ID | RT | R.T. | Area | R.T. | Area | R.T. | Area |
|  | 4 | Carbon dioxide | 2.29 | 2.29 | 29704359 | 2.29 | 48095191 | 2.29 | 30804935 |
|  | 64 | 1-Propanamine, | 2.43 | 2.43 | 4055442 | 2.43 | 7398403 | 2.43 | 735074 |

* 1. Consolidate data tables from each treatment

1. Feb 4, 2019 – Feb 6, 2019: Data manipulation in R studio
   1. Literature search for PCA, MDS, PCoA, and Negative Binomial analysis
   2. Coding PCA into R studio database to visualize data
2. Feb 7, 2019: Data Manipulation in R studio
   1. Literature search for PCoA analysis
   2. PCoA analysis meeting with Caitlin
      1. Discussed framework for PCoA
      2. Presented example based description of PCoA output
      3. Provided with code and data tables as a reference
      4. Thanks Caitlin!
3. Feb 11, 2019
   1. PCoA analysis of BACandBLUE trials VOC data
      1. Configure dataframe using R studio
4. Feb 21, 2019
   1. Repeating bacteria experiment using broth
      1. *F. faeni bacteria in broth:* Sample tested
         1. Empty
         2. Broth
         3. Reaction blank
         4. Rep 1
         5. Rep 2
         6. Rep 3