Fermentation to form Kombucha

Science recipe

1. Make tea or coffee as assigned
   1. Tea = 300 mL water to boiling (use tap water or if assigned hard water or DI water)
   2. Pour into fermenter container.
   3. Steep 2 black tea bags for 3.0 minutes
   4. Remove bags
2. Add 15.0 grams sucrose (table sugar), stir to dissolve. (If assigned corn syrup, use that instead of sucrose.)
3. Add SCOBY (individual amounts will be in a Ziploc bag)
4. Attached a coffee filter over the top with a rubber band. Do not seal jar with tight lid.

Make nmr sample

1. 1 mL of solution above to nmr tube
2. Small plug (1/8”) of SCOBY to float on the 1 mL solution
3. Cap as appropriate for variation (tight nmr cap, vented cap- tiny plug of cotton)
4. Acquire spectra
   1. H-1 nmr
   2. 10 minute scan (another technique with 3 minutes possible)
   3. Water solvent
   4. Process and save
5. Store at specified temperature:
   1. Room temp- beaker in the nmr lab
   2. 37° C- sand bath on the heater in the nmr lab
   3. Refrig- beaker in the refrigerator in the Chemistry Lounge (computer lab)
6. Show up on schedule to collect your nmr spectra
   1. 1st two weeks- get at least 10 daily (~24 hours apart) scans
   2. Next 6? Weeks- get 1-2 per week
   3. Grading based on effort and group size, so plan appropriately
7. Process the nmr, get the data, calculate the % of acetic acid and ethanol (metabolites)
8. Keep an updated graph and data table of % each of the two metabolites vs time (hours)

 