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# Fermentation Frenzy!

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Sacramento Home Winemakers

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# Tonight's Program



- ◆ Many fermented foods and beverages:
- ◆ Bread, cheese, meat, vegetables, others
- ◆ Vinegar, kombucha, lactic soda
- ◆ Beer, cider, mead, wine
- ◆ We will taste several of these throughout the talk

# Fermentation per Merriam Webster

- ◆ Sometimes used very specifically:
- ◆ “An enzymatically controlled anaerobic breakdown of...a carbohydrate to alcohol and carbon dioxide or to an organic acid”
- ◆ Or broadly, as tonight:
- ◆ “An enzymatically controlled transformation of an organic compound”

# What Fermented Foods have in common

- ◆ Food Preservation
  - ◆ Alcohol
  - ◆ Acid: lower pH
- ◆ Taste: the hedonistic experience
- ◆ Nutrition
  - ◆ Pro-biotic
  - ◆ Beneficial products of fermentation

# Taste as we go along

- ◆ For fermenting each group of foods or beverages:

- ◆ Ingredients

- ◆ Cultures

- ◆ Process

- ◆ Conditions

- ◆ First up: Sourdough bread by special guest speaker Gin Yang (I don't make sourdough bread...yet!)



# Sourdough Bread

- ◆ Ingredients: Flour, water, salt
- ◆ Cultures: Lactobacillus and yeast (generally feral or “wild”)
- ◆ Process: Gin will cover those
- ◆ Conditions: those, too



# Cheese

- ◆ Ingredients: Milk (Cow, goat, sheep, rarely other mammals), rennet
- ◆ Cultures (freeze dried or fresh):
  - ◆ Primary: Lactococcus, Lactobacillus, Streptococcus
  - ◆ Secondary: Penicillium, Geotrichum
- ◆ Process: Warm the milk, add culture, add rennet, drain
- ◆ Conditions: Warm to make, cool to age
- ◆ Tonight's Sample: Fromage Blanc
- ◆ 1 gallon Clover whole cow's milk, ½ gallon Straus Organic cow's milk
- ◆ MA4001: Lactococcus lactis, L. cremoris, L. I. diacetylactis, Streptococcus thermophilus
- ◆ 86 deg. F to make, 72 deg. to set, age 24 hrs at room temp, 24 in fridge
- ◆ Loosely covered; a humid environment to make this soft cheese



# Cheese Variations

Quick cheese: ricotta, paneer

Fresh cheese: chevre, fromage blanc, cream cheese

Soft ripened cheese: Brie, Camembert, blue

Hard cheese: cheddar, Parmesan, jack





# Meat

Not common; only some salumis and cured meats are cultured

Salami Toscano, Salami Calabrese

Tonight's example: Calabrese with Bactoferm F-RM-52

# Fermented Meats

- ◆ Ingredients: Beef, Pork, Pork Fat, salt, nitrites, nitrates, wood smoke, spices, dextrose, hog or sheep casings
- ◆ Cultures: Added, Bactoferm F-RM-52 is *Lactobacillus sakeii* and *Staphylococcus carnosus*, sometimes white molds
- ◆ Process: grind, season, culture, stuff, dry
- ◆ Conditions: Warm for culture, cool and lower humidity for drying

# Vegetables

Kosher Pickles (not quick pickles or bread-and-butter pickles)

Sauerkraut

Fermented salsas

Other lactic pickled vegetables



# Tonight's Samples

- ◆ Sauerkraut
  - ◆ I made this one
  - ◆ Added apples and apple juice
  - ◆ Recipe from Mary Karlin's *Mastering Fermentation*
- ◆ From Samantha Paone at Golden State Pickle Works
  - ◆ Pickled radish
  - ◆ Kosher dill cucumber slices





# Fermenting Vegetables

- ◆ Ingredients: Just about any vegetable and lots of fruits, salt, seasonings, maybe juices
- ◆ Cultures: Usually feral or wild; whatever is on the produce (organic may have a more diverse culture). Lactic bacteria dominate.
- ◆ Process
  - ◆ Cut up to allow good contact
  - ◆ Salt or brine
  - ◆ Mix
  - ◆ Let stand about 2 weeks
- ◆ Conditions
  - ◆ Warm room temperature
  - ◆ Ideally, become shelf stable
  - ◆ I refrigerate sauerkraut

# Non-Alcoholic Beverages and Condiments

- ◆ Vinegar, salsas
- ◆ Sodas, kefir, kvass
- ◆ Kombucha
- ◆ Sorry, no samples tonight from this group
- ◆ Ingredients: Alcoholic beverages, vegetables, sugar, milk, tea
- ◆ Cultures: Bacteria and yeast; often indigenous, can purchase “SCOBY” for kombucha and culture for vinegar
- ◆ Process: like liquid sauerkraut
- ◆ Conditions: warm



# Adult Beverages

- 🍷 Beer
- 🍷 Mead
- 🍷 Cider
- 🍷 Wine



# Adult Beverages, cont.

## Similarities

- ◆ Contain alcohol
- ◆ Fermented with yeast, primarily *Saccharomyces*
- ◆ Ancient origins
- ◆ Food (calorie) preservation
- ◆ Pleasure!

## Differences

- ◆ Starch or sugar
- ◆ Preparation of ingredients
- ◆ Process steps
- ◆ Carbonation or not
- ◆ Packaging

# Beer

- ◆ Ingredients:

- ◆ Barley malt, water, hops, yeast (and some others)

- ◆ Cultures: *Saccharomyces* beer yeast strains, some others

- ◆ Process: Mash the malt, rinse, boil adding hops, cool, add yeast, ferment, package

- ◆ Conditions: boiling, then cool to warm

# Tonight's Sample: Puzzle Maker India Pale Ale

- ◆ Ingredients: malts include organic 2-row, Victory, and Caravienne
- ◆ Hops: 100% Mosaic; 60 minutes, 30 minutes, flame out, dry hop
- ◆ Culture: Wyeast 1056 "Chico" yeast
- ◆ Process: Mash at 150 deg. F, sparge at 170 deg. F, boil 60 minutes, ferment at 68 deg. F
  - ◆ Keg and force carbonate
- ◆ Conditions: Secondary dry-hopping at room temperature, chilled to 38 deg. F in keg

# Mead: Honey Wine

- ◆ Donna Bettencourt with tonight's sample
- ◆ Ingredients: Honey, water, sometimes acid or tannin
- ◆ Cultures: Wine yeast
- ◆ Process: Boil (or not) honey and water, cool, pitch yeast
- ◆ Conditions: Warm

# Cider and Wine: Fermented Fruit Juice

- ◆ Ingredients: Juice of fruit (apples, sometimes pears, grapes, other fruits)
- ◆ Cultures: Saccharomyces yeast, sometimes indigenous but more often pure strains, secondary malolactic bacteria
- ◆ Process: Press juice and ferment, or ferment and press wine
- ◆ Conditions: Warm or cool
- ◆ Tonight's Samples:
  - ◆ Cider: 40% Fuji, 40% Granny Smith, 20% Pink Lady
  - ◆ Wines: My 2014 Estate Pinot Noir from the Petaluma Gap
  - ◆ Neal Schleffar's wild-yeast Cabernet
  - ◆ Others?



# Questions?

- ◆ The late Byron Burch, who taught me to brew beer and mead along with improving my winemaking, like to say:
- ◆ “If it has starch or sugar in it, we can make alcohol out of it!”