

From Last Time:

Science of Cooking – BCBT100
Fall 2012 - Bodwin

Tasting Fruit & Veg

Multisensory:

- Flavor
- Aroma
- Touch
- Irritation

Science of Cooking – BCBT100
Fall 2012 - Bodwin

How Humans Experience Their Food

Image: <http://www.umamiinfo.com/2011/02/24/what-exactly-is-umami.php>

Science of Cooking – BCBT100
Fall 2012 - Bodwin

Flavor/Taste

- Salty – salt
- Sweet – sugar & sugar-like molecules
- Sour – acids
- Savory – protein richness
- Bitter – alkaloids
- Umami – glutamate/DNA richness
- Metallic – bitter/sour

Science of Cooking – BCBT100
Fall 2012 - Bodwin

Tastes Receptors

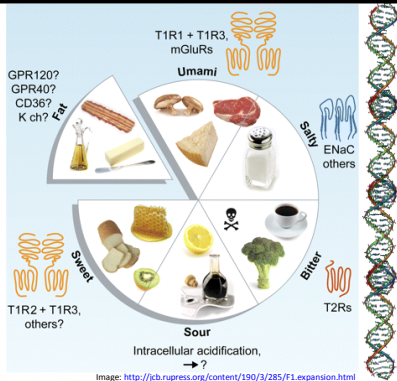


Image: <http://cb.ruess.org/content/190/3/285/F1.expansion.html>
Science of Cooking – BCBT100
Fall 2012 - Bodwin

Tongue Map...

Where do we taste?

Use *science* to *test* this!

Not completely accurate...

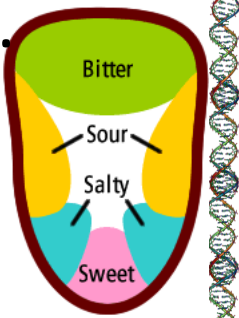
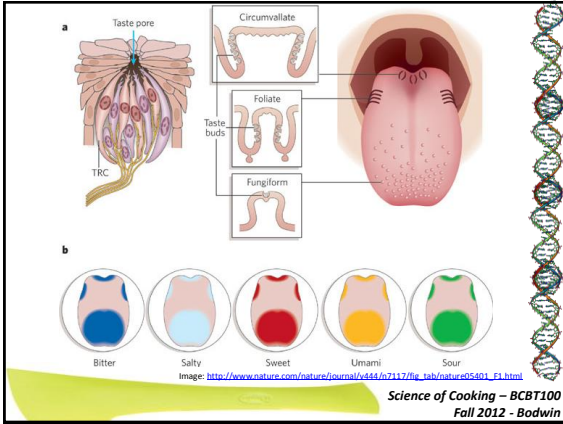
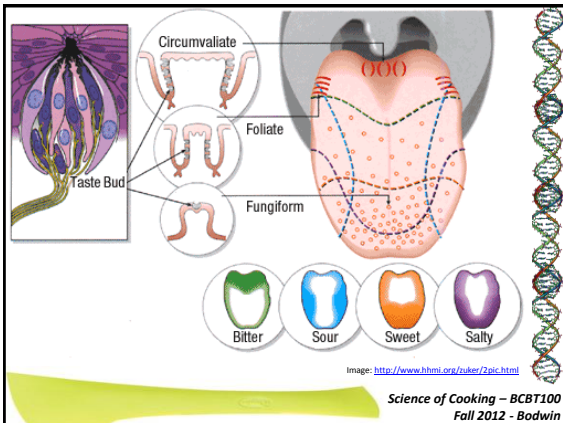


Image: http://www.musingsontheyine.com/tips_pai.shtml

Science of Cooking – BCBT100
Fall 2012 - Bodwin





Cooking Plants

Chlorophyll

Acid or base hydrolysis

Displace Mg^{2+}

Chlorophyll a
(Natural Green 3)

Chlorophyll b

Image: http://www.bio.miami.edu/dana/236/236f08_10vcnt.html

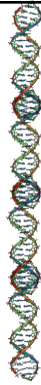
Science of Cooking – BCBT100
Fall 2012 - Bodwin

Keeping them green

Neutralize acid with baking soda

Baking soda = Sodium bicarbonate

Science of Cooking – BCBT100
Fall 2012 - Bodwin



Cooking Plants

Anthocyanins and Anthoxanthins

pH sensitive

Keep acidic!

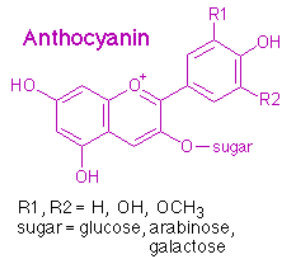


Image: <http://www.succulent-plant.com/glossary/images/anthocyanin.png>

Science of Cooking – BCBT100
Fall 2012 - Bodwin



Cooking plants

Texture = firmness of cell walls

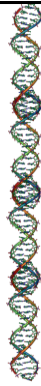
Acid + “hard” water = firm

“hard” = metals with +2 charge = bridge

Base + salt = soft

Sodium = Na⁺¹ = cap

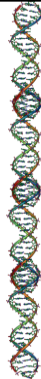
Science of Cooking – BCBT100
Fall 2012 - Bodwin



Starchy plants

Starch grains are hard, BUT absorb water and swell when heated
Heat breaks down cell walls, starch absorbs water that's released

figure on p. 282 in McGee book...



Science of Cooking – BCBT100
Fall 2012 - Bodwin

Cooking Methods

Boiling
Steaming
Pressure cooking
Baking
Frying
Grilling



Science of Cooking – BCBT100
Fall 2012 - Bodwin
