

Yeast Dose response Presenter outline and tips

Supplies (quantities depend on number of students)

15 ml conical tubes

Small latex balloons (beware of latex allergies)

Small plastic funnels

(http://www.amazon.com/gp/product/B00EVZCEDQ/ref=oh_aui_detailpage_o05_s01?ie=UTF8&psc=1)

Eye droppers

3 ml plastic transfer pipettes

15 ml tube rack (sold on amazon.com)

Markers

Yeast

Small plastic tasting spoons

Measuring tape

(http://www.amazon.com/gp/product/B001BJO22Q/ref=oh_aui_detailpage_o06_s00?ie=UTF8&psc=1)

Heat source

Warm Sugar water solution

Mystery compounds (recommend: sugar water, 70% ethanol, 50% bleach solution)- consider protective gloves depending on mystery compounds used.

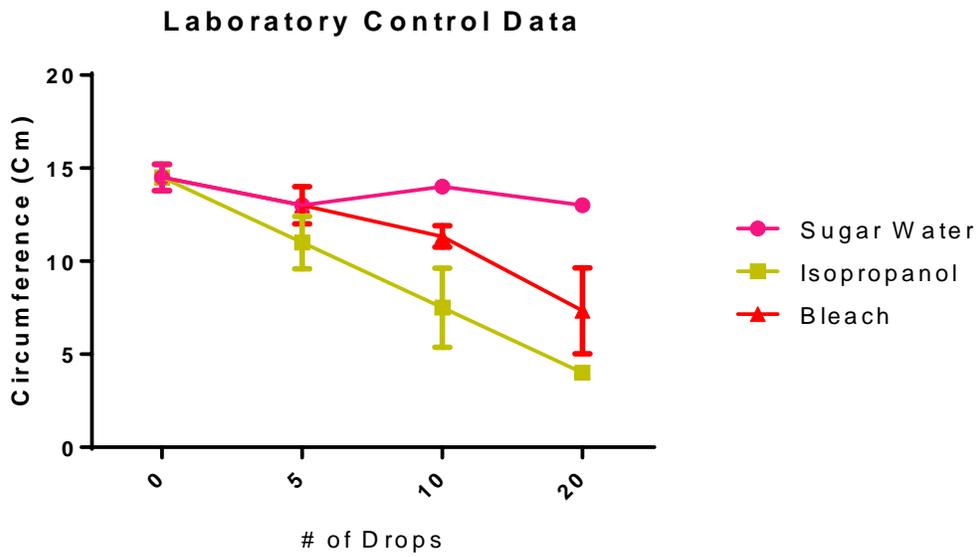
Disposable chop sticks work well as “mixers” in case yeast solution does not dissolve well

Rubber bands

Prep

In advance of the workshop, practice the protocol with mystery compounds to create “laboratory control” dose response curves. The size of the balloon depends on the amount of yeast, incubation time etc. So It’s best to test this with your system.

See examples below:



Tips:

The attached worksheet was designed for each group to test 1 control tube and 2 “mystery compounds” with 3 dilutions each (7 tubes total) due to time constraints. We had 5 groups of 4 students so we ended up with at least 2 data points for each mystery compound.

Ensure that the students secure the balloon over the grooves of the tube and put an elastic around it... balloons can pop and/or yeast can leak out if not secured properly. Don't underestimate how much time it will take the students to do this! Getting the balloons secured quickly is very important. Encourage team work.



Yeast Dose response Presenter outline and tips

-Don't put the balloons too close to the heat source (yeast becomes clumpy and does not inflate)

-pre-stretching the balloons is important

-I have found that the yeast doesn't always go into the solution super well (especially if the rubbing alcohol is not mixed well with the water to start with). Occasionally the yeast gets trapped in an air bubble at the top of the tube. I included a couple of chopsticks in each bag in case this happens. If the students need to use them, it's a good opportunity to teach them not to cross-contaminate, since they only have two chopsticks (ie. one chopstick per compound... moving from 5 to 10 to 20 if needed)

After the students collect their measurements, we added the data into a Prism (or excel) file that I had set up on my computer. I made one graph with the values I got from all my pre-testing so that served as our laboratory control. I had all the graphs and layouts set up, so we can insert the numbers and the graphs will appear. The students enjoyed seeing the data and how we can visualize the presentation of the results quickly.

