Testing hig magnification (100x) on growth of household yeast

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Abstract

Tried to make a movie of yeast growing under 100x magnification. The attempt failed since the yeast died, probably due to too high temperature of the sugar solution.

1 Introduction

Used the same experimental setup as in day before yesterday's setup.

A yeast/sugar/water solution was made by adding about a teaspoon of sugar to an egg-glass of water and stirring. The solution was then cooled by adding tapwater. To this solution a small amount (roughly equivalent to 30 mm^3 of household yeast ("IDUN mors hjemmebakte original gjr" with a "best before" marking of april 10 2016).

Used a feber termometer to determine when to add yeast. Did it when the temperature of the water was $40.7°C$.

A drop of this solution was put onto a microscope slide ("Elka Assistent, Objekttrger micro slides cleaned") and then put onto the microscope and a cover glass was put on top. The solution spread out under the entire cover glass and on visual inspection it seemed to be completely uniform.

The slide was then put onto the microscrope. The microscope is an Amscope 40X-2500X Infinity trinocular compound microscope. The 100x microscope lens (oil) was selected, and a drop of immersion oil was added to the slide.

Identical scripts as in the previous experiments were used to create samples and a movie of the animation.

2 Results

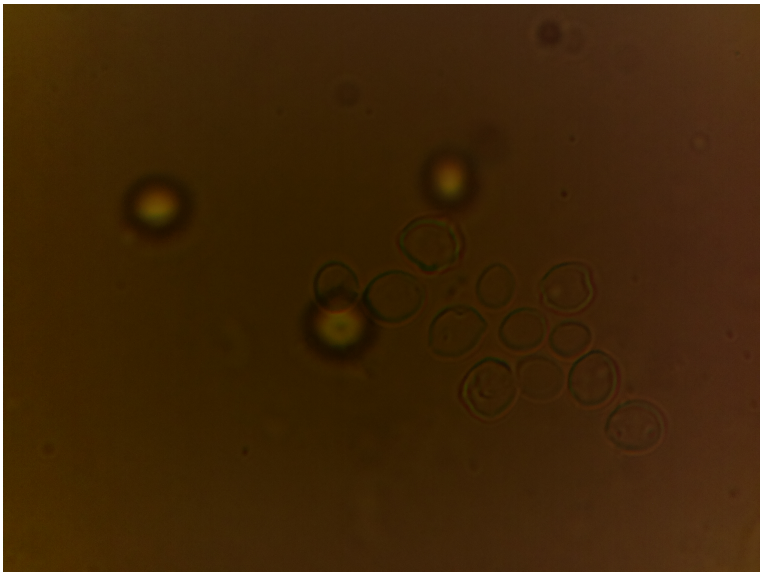

Figure 1: The first image in the sequence images/2016-03-30_185709.jpg

More images and an animation of the experiment can be found on the internet[1] [2].

[1] An animation of the experiment: `https://dl.dropboxusercontent.com/u/187726/shared-experimental-data/yeast-growth-30-mar-2016/movies/yeast-growth.mp4`.

[2] The raw image data: `https://dl.dropboxusercontent.com/u/187726/shared-experimental-data/yeast-growth-30-mar-2016/images`.

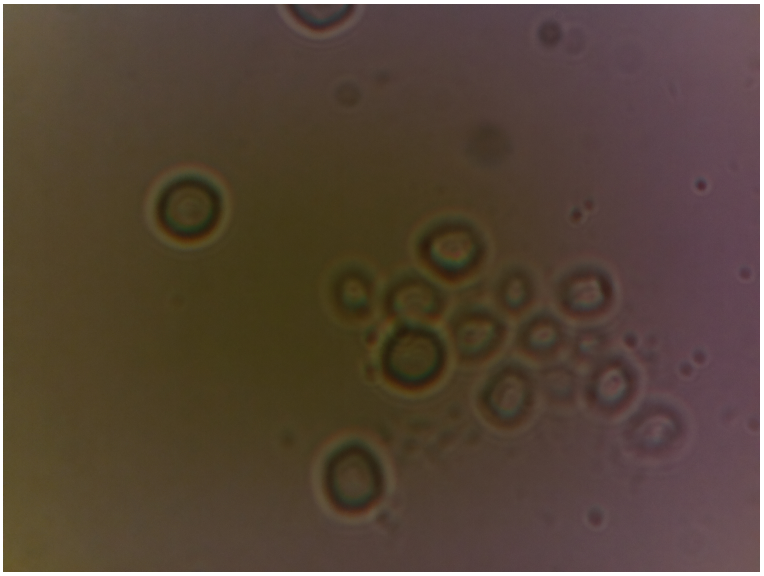

Figure 2: The last image in the sequence 2016-03-30_203003.jpg

3 Discussion

It seems that the yeast died. Probably because of the high temperature. Try lower temperature next time.

There are bubbles floating by, it may be air or something else.

Also, focus changes a lot during the experiment. It seems that frequent focus adjustments are necessary to get high quality animations over longer periods of time.

4 References

The previous experiment.