the WINNOWER

PHYSICS

Repeating Crumley: Flaws and Fixes

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I've come across a decent flaw with my setup. It seems the airflow is a little more than expected. Well at least it is enough to notice. The air bubbles in a few samples have been getting noticeably larger, in fact in one sample there is more air than water. So in an effort to stop this I've done one thing and am trying a few new things:

1. Upon Koch's suggestion I attempted a seal with nail polish. I have experience with this before when working with DNA tethering. I would make a micro-channel from a slide, a coverslip, and two pieces of double stick tape. This would make a rectangular channel with two ends open, to flow DNA and other components. After all flowing was finished I would seal the chamber with nail polish. In my experience there is still some air flow, but a sample would last for days and we are talking a volume of ~12ul. Here I am dealing with a volume of 6ml which is roughly 500 times more. If I get comparable air flow, the effect could be negligible.
2. As an idea, I'm trying to see if beeswax creates a decent seal. I filled the lid of a glass petri dish with melted wax and coated it. Then I poured out the wax that wasn't solid. I filled the bottom with water and seeds and pushed the top onto the bottom. We'll see what happens over time…
3. As an aside of an idea, I'm playing with measuring the seeds via the cellattice microruled coverslips I have. I'm also seeing whether seeds can grow in nail polish. I added some polish around the rim of the cellattice slip to bond it to the inside surface of the bottom of the analyslide petri dish. Then I added a very thin coat of polish to the top of the celllattice slip and dropped some seeds on top. I let it all dry for about 30 minutes before adding water to the sample. The idea was that just slight contact with the polish should hold the seeds in place over the ruler and it worked… so far.

I'll let you know how these little experiments work out over the next few days.