

# Laser Experiments

**Project:** lab journal

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Data for Each Laser Experiment Done													
	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Exp. #	Date	Speed [mm/min]	Size [mm]	Density Lines [lines/mm] (1-20)	Agar	Container	Method	Laser Iterations	Bacteria	Results	Summary	Bottom
2	1	10/07/2019	400	55x55	2	Clear	Plastic	Line To Line	1	E.Coli*	No Effect	High Speed	Cardboard
3	2	10/07/2019	200	55x55	2	Clear	Plastic	Line To Line	1	E.Coli*	No Effect	Low Speed	Cardboard
4	3	11/07/2019	200	40x40	10	Clear	Plastic	Line To Line	1	E.Coli*	Positive	Low Speed + Hi Density	White Isolate
5	4	11/07/2019	50	40x40	2	Clear	Plastic	Line To Line	1	E.Coli*	Bad Density QR	No cardboard	White Isolate
6	5	11/07/2019	600	32x32	20	Clear	Thick Paper Stamp	Line To Line	1	E.Coli*	No Effect	Stamp HQ	
7	6	11/07/2019	700	30x30	10	Clear	Thick Paper Stamp	Line To Line	1	E.Coli*	No Effect	Stamp LQ	
8	8	12/07/2019	200	30x30	7	Clear	Plastic	Line To Line	1	E.Coli*	Positive		
9	9	12/07/2019	250	30x30	12	Clear	Plastic	Line To Line	1	E.Coli*	Scannable		
10	10	16/07/2019	250	30x30	12	Black	Plastic	Line To Line	1	E.Coli*	Kills but melts agar		
11	11	16/07/2019	800	30x30	12	Black	Plastic	Line To Line	1	E.Coli*	Melted agar		
12	12	16/07/2019	1000	55x55	12	Black	Plastic	Line To Line	1	E.Coli*	No Effect		
13	13	20/07/2019	250	30x30	12	Clear	Plastic	Line To Line	1	Vibrio	Killed too much		
14	14	20/07/2019	400	30x30	12	Clear	Plastic	Line To Line	1	Vibrio	Killed Too much		
15	15	20/07/2019	250	30x30	12	Clear	Plastic	Line To Line	1	E.coli		Close Lid	
16	16	21/07/2019	300	55x55	12	Clear	Plastic	Line To Line	1	E.coli		Hig Density	
17	17	21/07/2020	500	35x35	12	Clear	Plastic	Line To Line	1	Vibrio			
18	18	21/07/2021	600	35x36	12	Clear	Plastic	Line To Line	1	Vibrio			
19	19	22/07/2021	450	35x35	15	Clear	Plastic	Line To Line	1	Vibrio			
20	20	23/07/2019	450	32x32	15	Clear	Plastic	Line to Line	1	Vibrio			
21	21	23/07/2020	450	55x55		Clear	Plastic	Line To Line	1	Vibrio			
22	22	26/07/2019	450	55x55	14	Clear	Plastic	Line To Line	1	Vibrio			
23	23	27/07/2019	450	55x55	12	Clear	Plastic	Line To Line	1	Vibrio			
24	24	29	500	55x55	12	Clear	Plastic		1	Vibrio	Control		
25	25	29	500	55x55	12	Clear	Plastic	Line To Line	1	Vibrio			
26	26		550	55x55	14	Clear	Plastic	Line To Line	1	Vibrio			
27	27	08/08/2019	600	55x55	14	Clear	Plastic	Line To Line	1	Vibrio			
28	28	08/08/2019	600	55x55	14	Clear	Plastic	Line To Line	1	Vibrio			
29													
30													
31													

Wavelength of Laser in Use: 400-460 [nm]

To Try: ~~Glass Dish~~, Black Agar, closed plate

Geet Suggest: Do it in a Fridge Room, or adding a silca gel on top to reduce heat spread

$(\square-12.5)/18.75 \approx \rho$  ; considering the linear regime

IMG\_4518.JPG



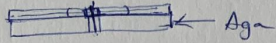
# GERMAN ASSOCIATION FOR SYNTHETIC BIOLOGY

$$y = mx + c$$

Exp ② (12/7/19)

200, 7

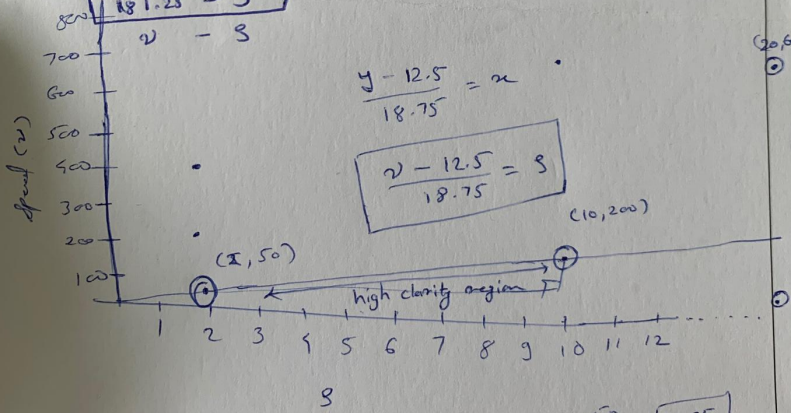
~~200~~,



Probable Combinations (considering linear behavior)

250	-	12.667
125	-	6
143.75	-	7
162.50	-	8
181.25	-	9

$$c = 255$$



$$m = \frac{150}{8} \quad 18.75$$

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# Even layer of bacteria

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## Introduction

This protocol should be used to achieve an even layer of bacteria on an agar plate. In our project these plates are used to edge an QR code pattern and yield a scannable product. This protocol has been tested with *E. coli* and *V. natriegens*

## Materials

- › desired agar plate
- › overnight culture
- › Milli Q water

## Procedure

- ✓ 1. measure OD600 of overnight culture
- ✓ 2. dilution of overnight culture to OD 0.2 with MilliQ water for *E. coli*, OD 0.5 for *Vibrio*
- ✓ 3. use this dilution and add either 2.25 ml to small or 4 ml to big agar plates and let it sit for 1 minute

00:01:00



- ✓ 4. remove excess liquid from the plate
- ✓ 5. let the plate dry in a sterile environment for 15 minutes

00:15:00



- ✓ 6. the plate is ready for any given purpose