Candidate 4 evidence

UV Light Exposure on Growth In Yeast.

Aim: To investigate the effect of UV light exposure time on the growth of colonies in UV sensitive yeast.

Underlying Biology: The structure of DNA is made up of many nucleotides. A nucleotide is then made up of 3 things, a base, a phosphate and a deoxyribose sugar. There are 4 different bases, adenine and thymine which pair together and cytosine and guanine which pair together. These all make up DNA. When a mutation occurs it is when a change in the genome happens and then it can cause either a non-functional protein or make no protein at all. Mutations are random and could happen to anyone but they can be increased by mutagenic agents such as chemicals or radiation. E.g. mustard gas or UV light. Single-gene mutations are when there is an alteration in the nucleotide sequence. This could happen by substitution, insertion or deletion. Substitution is when a nucleotide is replaced by a different one, insertion is the addition of an extra nucleotide to the sequence and deletion is the removal of a nucleotide. All of which cause changes in the nucleotide sequence and can cause mutations. A chromosone mutation is the change in the chromosone structure. It is effected by translocation, insertion and deletion. All the same as the single-gene mutations, apart from translocation. This is where a nucleotide

moves position and changes the nucleotide sequence.

Method: I used 4 petri dishes to have my yeast glucose agar in and I added in the yeast solution. I then sellotaped the petri dishes closed and wrapped all 4 petri dishes in tinfoil. Once ready I exposed 3 dishes to UV light then put them into the incubator.

experimental data:

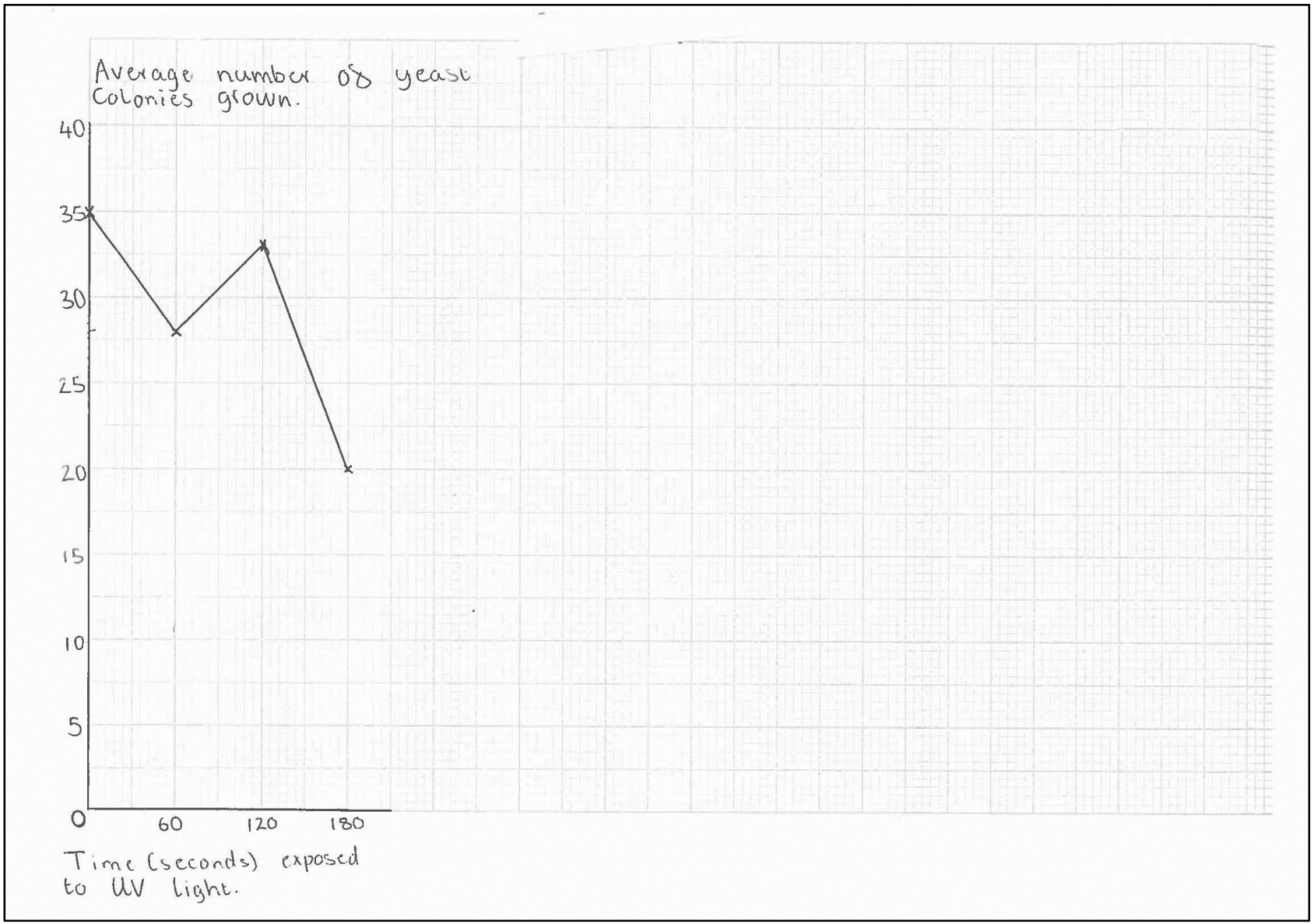
Time (seconds) exposed to UV Light	number of yeast colonies grown. Group data 1	2	3	4	Avg.
0	32	40	41	28	35.
60	32	26	37	18	28.
120	34	19	35	42	33.
180	18	28	20	14.	20.

Internet Data: ~~From the internet data you can see that from the experiment the results are similar. In both sets of results you can~~

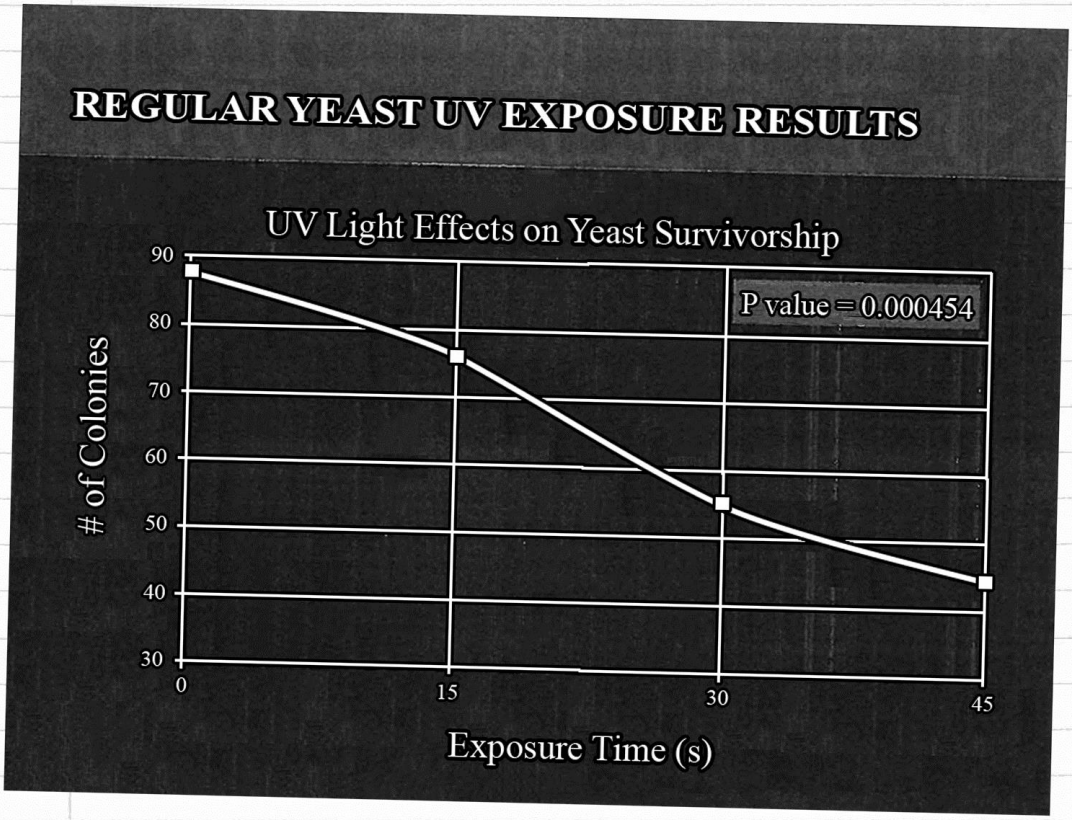
Internet Source.

Evaluation:

Analysis: From both sets of results you can see that the are similar. You can as at both times of 0 seconds the number of yeast colonies grown is at it's highest and at a time of 180 seconds the number of yeast colonies grown is at it's lowest.


Average number of yeast Colonies grown.
40
35
30
25
20
15
10
5
0
60
120
180
Time (seconds) exposed to UV light.

1.


REGULAR YEAST UV EXPOSURE RESULTS
UV Light Effects on Yeast Survivorship
P value = 0.000454
# of Colonies
90
80
70
60
50
40
30
0
15
30
45
Exposure Time (s)

Conclusion: From the results of the experiment it tells us that the UV light ~~does~~ exposure time does have an effect on the number of yeast colonies grown in UV sensitive yeast, as the results show that when you increase the exposure time, the number of yeast colonies decreases.

Evaluation: In the experimental procedure there could have been improvements to get better and more accurate results. The yeast might of been exposed for longer than the calculated time as this because of when we put in and took out the petri dishes the yeast was exposed for a longer amount of time, giving us less accurate results. In my results there is an unexpected increase in colony growth at 120 seconds. This could have been because of the positioning and distance from the UV light when exposed. We could have got more UV lights to stop this from happening.

References: https://slideplayer.com/slide/6813163/ (1)