

Molecules and Processes of Life: Activity 6 - Cellular Respiration and the Effect of Pollutants on Its Rate

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DATA

Table 6.1. Gas (CO_2) volume (mL) at 1 minute intervals for 10 minutes for culture tube containing yeast and water versus culture tube containing yeast, water, and sugar.

Tube		Gas Volume (mL) in Culture Tube at Time (min)										
#	Contents	0	1	2	3	4	5	6	7	8	9	10
1	Yeast+Water	0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
2	Yeast+Sugar+Water	0	0.1	0.3	1	1.5	2.2	2.7	3	3.1	3.3	3.5

Table 6.2. Gas (CO_2) volume (mL) at 1 minute intervals for 10 minutes for 6 culture tubes, each containing yeast, water, sugar, and one of six simulated pollutants.

Group #	Simulated Pollutant	Gas Volume (mL) in Culture Tube at Time (min)										
		0	1	2	3	4	5	6	7	8	9	10
1	Isopropyl alcohol	0	0	0	0	0	0	0	0	0	0	0
2	Vinegar	0.3	0.4	0.5	0.6	0.6	0.6	0.7	1	1.1	1.2	1.3
3	Salt solution, 10%	0	0.3	0.3	0.3	0.3	0.8	1.1	1.4	1.8	2.3	2.8
4	Baking soda soln., 5%	0	0	0	0	0	0	0	0	0	0.1	0.2
5	Bleach solution, 1%	0	0	0	0	0	0	0	0	0	0	0.1
6	Soap solution, 10%	0	0.2	0.25	0.25	0.3	0.4	0.6	0.8	1	1.3	1.8

Table 6.3. Total volume of CO_2 produced and cellular respiration rate (mL/min) for 8 combinations of yeast, water, sugar, and simulated pollutant.

Tube Contents	Total Volume of CO_2 Produced	Cellular Respiration Rate (mL/min)
Yeast + water	0.3	0.03
Yeast + water + sugar	3.5	0.35
Yeast + water + sugar + isopropyl alcohol	0	0
Yeast + water + sugar + vinegar	1.3	0.13
Yeast + water + sugar + salt solution, 10%	2.8	0.28
Yeast + water + sugar + baking soda solution, 5%	0.2	0.02
Yeast + water + sugar + bleach solution, 1%	0.1	0.01
Yeast + water + sugar + soap solution, 10%	1.8	0.18

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