Bacteriology: Lab 2

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Experiment #3

Section #2

Plate counts.

1. 10^{-2} dilution: Too numerous to count.
2. 10^{-3} dilution: Too numerous to count.
3. 10^{-4} dilution: Too numerous to count.
4. 10^{-5} dilution: Too numerous to count.
5. 10^{-6} dilution: 185 colonies.

$$\text{Bacterial Concentration in original solution} = \frac{\sum_{i=1}^{n}(C_i x_i)}{nv}$$

where:
C_i = Number of colonies counted on plate i
x_i = dilution factor of plate i
v = volume of bacterial solution added to each plate.

$\rightarrow$ Bacterial Concentration in original solution $= \frac{(10^6 \cdot 294)\text{cells} \cdot ml^{-1}}{1}$.
(Each colony observed is assumed to derive from one cell.)
$\rightarrow$ Bacterial concentration $= 1.85 \cdot 10^8 \text{cells} \cdot ml^{-1}$

Experiment #4

Section #2

Plate counts.

1. 10^{-2} dilution: Too numerous to count.
2. 10^{-3} dilution: Too numerous to count.
3. 10^{-4} dilution: Too numerous to count.
4. 10^{-5} dilution: Too numerous to count.
5. 10^{-6} dilution: 294 colonies.

$$\text{Bacterial Concentration in original solution} = \frac{\sum_{i=1}^{n}(C_i x_i)}{nv}$$

where:
C_i = Number of colonies counted on plate i
x_i = dilution factor of plate i
v = volume of bacterial solution added to each plate.

$\rightarrow$ Bacterial Concentration in original solution $= \frac{(10^6 \cdot 294)\text{cells} \cdot ml^{-1}}{1}$.
(Each colony observed is assumed to derive from one cell.)
$\rightarrow$ Bacterial concentration $= 2.94 \cdot 10^8 \text{cells} \cdot ml^{-1}$