

Oct 24, 2020

# Measuring the amount of bacteria in a soil sample

DOI

[dx.doi.org/10.17504/protocols.io.bkrckv2w](https://dx.doi.org/10.17504/protocols.io.bkrckv2w)

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iGEM Groningen 2020



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OPEN ACCESS



DOI: [dx.doi.org/10.17504/protocols.io.bkrckv2w](https://dx.doi.org/10.17504/protocols.io.bkrckv2w)

**Protocol Citation:** Andreea S 2020. Measuring the amount of bacteria in a soil sample. **protocols.io**  
<https://dx.doi.org/10.17504/protocols.io.bkrckv2w>

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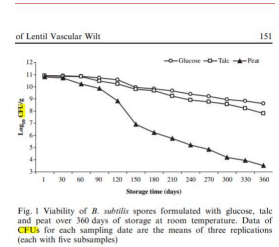
**Protocol status:** Other

The protocol is developed based on literature and has not been tested yet.

**Created:** September 03, 2020

**Last Modified:** October 24, 2020

**Protocol Integer ID:** 41476





## Abstract

Colony Forming Units (c.f.u) is a unit that is used in microbiology to estimate the number of viable bacteria or fungal cells in a sample. It also depends on their ability to multiply under controlled conditions. In the paper published by *El-Hassan and Gowen, 2006*, they analyzed various formulations of *Bacillus subtilis* by counting the CFU of B. subtilis present in every formulated product.


### CITATION

S. A. El-Hassan and S. R. Gowen (2006). Formulation and Delivery of the Bacterial Antagonist *Bacillus subtilis* for Management of Lentil Vascular Wilt Caused by *Fusarium oxysporum* f. sp. *lentis*. *Journal of Phytopathology*, Volume 154, Issue 3.






LINK

<https://doi.org/10.1111/j.1439-0434.2006.01075.x>

## CFU determination

- 1 Colony Forming Units (CFU) can be determined by estimating the OD of spore suspension using a tube-reading spectrophotometer adjusted at 1.978 [corresponding to  $8.5 \cdot 10^{10}$  CFU/ml] at 600nm absorbance wavelength
- 2 The formulation will be placed on sterile aluminum foil in pans and air-dried for  24:00:00 with occasional stirring in a laminar airflow cabinet.
- 3 Dried formulations (35% moisture content) of *B. mycoides* will be passed through a 250µm mesh sieve to attain the desired particle size.
- 4 Pack in sterilized polypropylene bags, seal and store at room temperature prior to use.
- 5 Count CFUs to estimate the number of viable propagules of *B. mycoides* using the standard dilution platin method described in step 6.

## Standard dilution method

- 6 Take three  1 g aliquots of the dried powder and place in  99 mL sterile PBST solution (this will include PBS +  0.05 % (v/v) Tween 20). Stir magnetically at high speed for  00:15:00 . Now dilute this suspension with approximately and take  0.2 mL of this suspension and plate on Nutrient Agar (NA) media.

## Citations

S. A. El-Hassan and S. R. Gowen. Formulation and Delivery of the Bacterial Antagonist *Bacillus subtilis* for Management of Lentil Vascular Wilt Caused by *Fusarium oxysporum* f. sp. *lentis*  
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