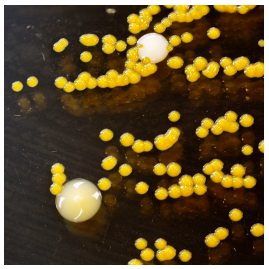
Mar 20, 2023

Plate Count Agar



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Protocol status: Working
We use this protocol and it's working

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Keywords: Plate count agar, agar, plate counting, counting, CFU, plate count agar plate count agar, microbiological growth medium, pca, bacteria, substrate for bacteria, using pca, aerobic bacteria, living aerobic bacteria, viable bacterial growth, growth of the organism, units per gram, solid sample, liquid sample, fermentable carbohydrate, yeast extract, organism, sample, glucose, gram, substrate, source for vitamin, plate, nitrogen

Abstract

Plate Count Agar (PCA), is a microbiological growth medium to assess viable bacterial growth of a sample.
The total number of living aerobic bacteria can be determined using PCA which is a substrate for bacteria to grow on. The medium contains **casein** which provides nitrogen, carbon, amino acids, vitamins and minerals to aid in the growth of the organism. **Yeast extract** is the source for vitamins and **glucose** is the fermentable carbohydrate. **Agar** is the solidifying agent. This is a non-selective medium and the bacteria is counted as colony forming units per gram (CFU/g) in solid samples and (CFU/ml) in liquid samples.

Guidelines

Prepare enough for the necessary number of experiments to perform in order to prevent batch-to-batch variation between experiments. Input chemicals should be of a certain quality in order to prevent contaminants that can impact microbial growth and selection.

Materials

Magnetic stirrer, autoclave, scale, tubes, flask

Protocol materials

- Tryptone **Merck Millipore (EMD Millipore) Catalog #**T9410
- Yeast Extract **Merck MilliporeSigma (Sigma-Aldrich) Catalog #**Y0875
- Glucose **Merck MilliporeSigma (Sigma-Aldrich) Catalog #**G7021
- Agar **Merck MilliporeSigma (Sigma-Aldrich) Catalog #**A1296

Troubleshooting

Safety warnings

Be sure to wear appropriate PPE when working with antibiotics and chemicals. Take care when working with hot flasks and tubes.

500 mL Plate Count Agar

2h

1 In a bottle, add approx. 400 mL deionized water — 5m

2 Measure and add: — 15m

- 5 g Tryptone
- 2.5 g Yeast extract
- 1 g Glucose
- 15 g Agar

Materials:

- Tryptone **Merck Millipore (EMD Millipore) Catalog #**T9410
- Yeast Extract **Merck MilliporeSigma (Sigma-Aldrich) Catalog #**Y0875
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3 Adjust pH to pH 7.0 using sodium hydroxide — 5m

4 Fill bottle to 500 mL total with deionized water — 5m

5 Autoclave liquid at 121 °C for 00:45:00 — 45m

6 Aliquot liquid in 15 mL and 50 mL units and store refrigerated at 4 °C — 15m