14C Respiration/Production Methods

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22 September, 2015

Overview

The simultaneous measurement of bacterial respiration and production will give the best results for estimating growth efficiency. Here, we have constructed custom bacterial respiration/production vials (Fig 1). We will use these vials with 14C-resources. However, first we must optimize the methods.

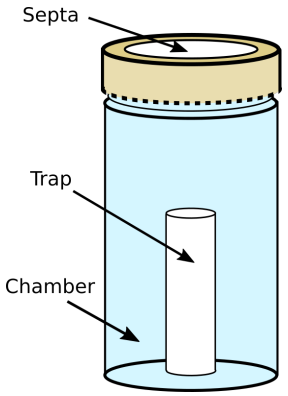

Figure 1: Bacterial Respiration and Production Vial

Optimizations

As we start there are a few things we need to optimize. We are going to start by determining the efficiency of our apparatus. We are doing this using 14C-Bicarbonate. But we need to check a few things first:

1. How much Bicarbonate should we add
2. What is the efficiency of the trap

1) Bicarbonate

I did a simple experiment where I added known volumes of the bicarbonate stock to 1500 μL of scintillation cocktail (1, 5, and 10 μL). Based on this I discovered that the LSC could only measure 1 μL max. The CPM for this voucher was ~2,300,000 cpm.

2) Trap Efficiency