



Mar 09, 2023

Preparation of 1L of Foraging Buffer

DOI

dx.doi.org/10.17504/protocols.io.j8nlkw28xl5r/v1

Alfonso Pérez Escudero¹, Alid Al-Asmar¹, gabrielmadirolas¹

¹Research Centre on Animal Cognition (CRCA), Centre for Integrative Biology (CBI), Toulouse III University, CNRS, Toulouse, France



APE Lab

CNRS

Create & collaborate more with a free account

Edit and publish protocols, collaborate in communities, share insights through comments, and track progress with run records.

Create free account

OPEN  ACCESS



DOI: <https://dx.doi.org/10.17504/protocols.io.j8nlkw28xl5r/v1>

Protocol Citation: Alfonso Pérez Escudero, Alid Al-Asmar, gabrielmadirolas 2023. Preparation of 1L of Foraging Buffer. [protocols.io https://dx.doi.org/10.17504/protocols.io.j8nlkw28xl5r/v1](https://dx.doi.org/10.17504/protocols.io.j8nlkw28xl5r/v1)

License: This is an open access protocol distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited

Protocol status: Working

We use this protocol and it's working

Created: February 21, 2023

Last Modified: March 09, 2023

Protocol Integer ID: 77373

Keywords: foraging buffer protocol, experiments with the worm *Caenorhabditis elegans*, buffer protocol, foraging experiment, foraging medium, worm *Caenorhabditis elegans*, buffer, using different strain, bacteria, preparation, bacteriostatic concentration, bacterial strain, antibiotics at bacteriostatic concentration, preparation of 1l

Funders Acknowledgements:

Human Frontier Science Program

Grant ID: LT000537/2015

CNRS Momentum Program

Fyssen Foundation Research Grant

Gore Family Foundation start-up grant

SEVAB PhD School (Toulouse III University)

Abstract

Protocol is mainly inspired from: WormBook Methods

http://www.wormbook.org/chapters/www_strainmaintain/strainmaintain.html.

We use this protocol for our foraging experiments with the worm *Caenorhabditis elegans*, using different strains of bacteria.

This protocol describes how to produce the buffer we use to wash our bacteria after growing them in LB. The buffer has a similar composition as our Foraging Medium, but contains no cholesterol. It contains antibiotics at bacteriostatic concentrations (for our bacterial strains), in order to prevent bacteria from multiplying after they have been washed.




Materials

Agar powder:  Agar **Merck MilliporeSigma (Sigma-Aldrich) Catalog #A1296-10KG**

Cholesterol:  Cholesterol powder **Merck MilliporeSigma (Sigma-Aldrich) Catalog #C3045-5G**

Absolute ethanol:

 Ethanol absolute $\geq 99.8\%$ AnalaR NORMAPUR® ACS Reag. Ph. Eur. Analytical Reagent **VWR International (Avantor) Catalog #20821.310-1L**


Sodium chloride (NaCl):  Sodium chloride **Merck MilliporeSigma (Sigma-Aldrich) Catalog #S5886-1KG**


Peptone:  Peptone (Bacto) **Becton Dickinson (BD) Catalog #211677-500G**

Chloramphenicol:  Chloramphenicol **Merck MilliporeSigma (Sigma-Aldrich) Catalog #CO378-25G**

Novobiocin:  Novobiocin **Merck MilliporeSigma (Sigma-Aldrich) Catalog #N1628-5G**






Tissue Culture Dishes:

100×20mm:  Falcon® 100 mm TC-treated Cell Culture Dish **Corning Catalog #353003**



60×15mm:  Petri Dishes 60×15mm with vent **greiner bio-one Catalog #628102**

35×10mm:  Plastic petri dish 35 × 10 mm style **Falcon Catalog #353001**

Troubleshooting

- 1 In order to perform this protocol, you will need the following solutions:
 - pH=6 phosphate buffer (as prepared in: <https://www.protocols.io/view/preparation-of-0-5l-of-phosphate-buffer-ph-6-0-n2bvj8r7bgk5/v1>)
 - 1 M magnesium sulfate (as prepared in: <https://www.protocols.io/view/preparation-of-1m-magnesium-sulfate-solution-mgso4-ca4rsgv6>)
 - 1 M calcium chloride (as prepared in: <https://www.protocols.io/view/preparation-of-1m-calcium-chloride-solution-cacl2-b8parvie>)
 - 10 mg/mL chloramphenicol in absolute ethanol (stored in freezer)
 - 50 mg/mL novobiocin in milliQ water (filter-sterilized and then stored in freezer, in 1.8 mL aliquots to avoid defreezing-refreezing the whole stock)
- 2 Add  2.32 g ± 0.02 of sodium chloride (NaCl).
- 3 Add  780 mL of milliQ water.
- 4 Add a clean magnet (for stirring) and autoclave.
- 5 Put the bottle on a stirrer, and wait until it cools down to around 60°C. At this temperature, the bottle should feel very hot to the touch, but one can hold it for a while without feeling too uncomfortable. The agar should still be liquid.
- 6 While the mix is being stirred, do the following steps in that order, dispensing the reagents right above the surface (to avoid bubbles) with a sterile pipette:
- 7 Add  20 mL of phosphate buffer as prepared in <https://www.protocols.io/view/preparation-of-0-5l-of-phosphate-buffer-ph-6-0-n2bvj8r7bgk5/v1>. This should be added first to prevent any unnecessary precipitation of the next reagents. Wait for ~20 seconds after adding the buffer to give it time to mix well and stabilize the pH.
- 8 Add  0.8 mL of 1M magnesium sulfate (MgSO₄) solution as prepared in <https://www.protocols.io/view/preparation-of-1m-magnesium-sulfate-solution-mgso4-ca4rsgv6>.
- 9 Add  0.8 mL of 1M calcium chloride (CaCl₂) solution as prepared in <https://www.protocols.io/view/preparation-of-1m-calcium-chloride-solution-cacl2-b8parvie>.
This step should make the medium a bit cloudier, but remain translucent.



- 10 Add  0.8 mL of chloramphenicol (10 mg/mL in absolute ethanol, stored in freezer).
- 11 Add  1.6 mL of novobiocin (50 mg/mL in milliQ water, stored in freezer).
- 12 We store our buffer at room temperature, usually for 2-3 weeks without problem. After this time, it is very common that salts will start precipitating in the bottom of the bottle, but we sometimes use the buffer for a few more weeks if it shows no crystals.