

YEM (Yeast Extract Mannitol) Media For use in both liquid cultures and plates

Introduction

Yeast Extract Mannitol (YEM) media is often used for the growth of *Agrobacterium* as well as *Rhizobium* bacterial strains. Mannitol is used as a sugar substitute to provide a carbon source while the yeast extract provides the nitrogen for bacterial growth.

YEM media is a complex media formulation that provides optimal and stress-free growing conditions for cultures of both *Agrobacterium* and *Rhizobia*.

Below are instructions for both liquid YEM media for culture as well as YEM agar plate media.

Materials

- Yeast extract
- D-Mannitol
- $\text{MgSO}_4 \cdot 7 \text{H}_2\text{O}$
- NaCl
- K_2HPO_4
- Sodium Gluconate
- CaCl_2
- Agar (optional)
- Antibiotic (optional)

Storage and Handling

Store YEM liquid media for up to one year at 4°C. YEM Agar plates may be stored for up to 3 months at 4°C.

Method

Stock Solutions

100X d-Mannitol Stock Solution

- 1) Weigh 50 g of d-Mannitol.
- 2) Dissolve in 500 mL of milli-Q H_2O .
- 3) Filter sterilize and store at room temperature.

100X MgSO₄ Stock Solution

- 1) Weigh 2 g of MgSO₄ • 7 H₂O.
- 2) Dissolve in 100 mL of milli-Q H₂O.
- 3) Filter sterilize and store at room temperature.

100X NaCl Stock Solution

- 1) Weigh 1 g of NaCl.
- 2) Dissolve in 100 mL of milli-Q H₂O.
- 3) Filter sterilize and store at room temperature.

100X K₂PO₄ Stock Solution

- 4) Weigh 5 g of K₂PO₄.
- 5) Dissolve in 100 mL of milli-Q H₂O.
- 6) Filter sterilize and store at room temperature.

100X Sodium Gluconate Stock Solution

- 1) Weigh 50 g of Sodium Gluconate.
- 2) Dissolve in 500 mL of milli-Q H₂O.
- 3) Filter sterilize and store at room temperature.

1000X CaCl₂ Stock Solution

- 1) Weigh 16.6 g of CaCl₂.
- 2) Dissolve in 100 mL of milli-Q H₂O.
- 3) Filter sterilize and store at room temperature.

YEM Liquid Media Preparation

- 1) Weigh out 0.5 g of Yeast Extract and add to 869 mL of milli-Q H₂O.
- 2) Autoclave at 120°C for 30 minutes.
- 3) After cooling, add the following stock solutions using aseptic technique in a laminar flow hood:
 - a. 50 mL 100X d-Mannitol stock solution
 - b. 10 mL 100X MgSO₄ stock solution
 - c. 10 mL 100X NaCl stock solution
 - d. 10 mL 100X K₂PO₄ stock solution
 - e. 50 mL 100X Sodium Gluconate stock solution
 - f. 1 mL 1000X CaCl₂ stock solution
- 4) Mix thoroughly and store at 4°C for up to 1 year.

YEM Agar Media Preparation

- 1) Weight out 0.5 g of Yeast Extract.
- 2) Weigh out 15 g of agar.
- 3) Add Yeast Extract and agar to 869 mL of milli-Q H₂O.
- 4) Autoclave at 120°C for 30 minutes.
- 5) Cool media to 50°C and add the following stock solutions using aseptic technique in a laminar flow hood:
 - a. 50 mL 100X d-Mannitol stock solution
 - b. 10 mL 100X MgSO₄ stock solution
 - c. 10 mL 100X NaCl stock solution
 - d. 10 mL 100X K₂PO₄ stock solution
 - e. 50 mL 100X Sodium Gluconate stock solution
 - f. 1 mL 1000X CaCl₂ stock solution
- 6) Add specific selection antibiotic as needed.
- 7) Mix thoroughly and pour ~30 mL of media into petri dishes in a laminar flow hood. Let cool completely and store at 4°C for up to 3 months.

Note: If you only need a few plates at a time, YEM agar media (without selection antibiotic) may be stored as a solid at 4°C for up to 1 year. Melt agar media in a 50°C water bath. Pipet the desired amount of agar media into a sterile flask, add the appropriate amount of selection antibiotic and use as needed.

Related Products

- AGL-1 *Agrobacterium* Chemically Competent Cells (GoldBio Catalog # [CC-106](#))
- GV3101 *Agrobacterium* Chemically Competent Cells (GoldBio Catalog # [CC-105](#))
- LBA4404 *Agrobacterium* Chemically Competent Cells (GoldBio Catalog # [CC-107](#))
- EHA 105 *Agrobacterium* Chemically Competent Cells (GoldBio Catalog # [CC-108](#))
- C58C1 *Agrobacterium* Chemically Competent Cells (GoldBio Catalog # [CC-109](#))
- GV3101 *Agrobacterium* Electrocompetent Cells (GoldBio Catalog # [CC-207](#))
- AGL-1 *Agrobacterium* Electrocompetent Cells (GoldBio Catalog # [CC-208](#))
- LBA4404 *Agrobacterium* Electrocompetent Cells (GoldBio Catalog # [CC-220](#))
- C58C1 *Agrobacterium* Electrocompetent Cells (GoldBio Catalog # [CC-240](#))
- EHA 105 *Agrobacterium* Electrocompetent Cells (GoldBio Catalog # [CC-225](#))