microgen
Ready Prepared Media

Technical Information

Terrific Broth

Product Code: LQ1114

Application:- Recommended for the high-yield cultivation of Escherichia coli strains for plasmid DNA production, recombinant protein expression, and general molecular biology enrichment protocols in accordance with harmonized laboratory standards.

Composition**

Ingredients	Gms / Litre
MG Tryptone P#	12.000
Yeast Autolysate	24.000
Dipotassium phosphate	9.400
Monopotassium phosphate	2.200
Glycerol ##	4.000 mL
pH after sterilization (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters
Pancreatic digest of casein
Equivalent to 5.04 g of anhydrous glycerol

Principle & Interpretation

Terrific Broth is a highly enriched microbial growth medium originally formulated by Tartoff and Hobbs for increasing the growth yields of recombinant Escherichia coli strains. Standard Luria-Bertani (LB) media often limits the cell density due to rapid carbon source exhaustion and steep pH drops. This customized liquid medium addresses those limitations directly via an augmented nutritional profile.

MG Tryptone P# provides essential nitrogenous growth factors, peptides, and amino acids. Yeast Autolysate delivers vital B- complex vitamins, trace elements, and cofactors required for high-density proliferation. Glycerol is added as a non-fermentable carbon and energy source, which supports extensive vegetative growth without generating excess acidic byproducts. High concentrations of dipotassium and monopotassium phosphates function as an efficient buffering system to stabilize the metabolic pH fluctuations during prolonged logarithmic growth phases.

Type of specimen

Pharmaceutical recombinant samples, biotechnology clonal cultures, and molecular biology specimens.

Specimen Collection and Handling:

For research and manufacturing processing, follow standard sterile techniques for microbial strain collection and handling as per biosafety protocols. After use, contaminated production containers and materials must be completely sterilized by autoclaving before final laboratory discarding.

Warning and Precautions :

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling recombinant specimens and cultures. Standard level-2 containment procedures should be maintained while handling active high-density growths.

Limitations :

1. Though the medium is optimized for high biomass production, downstream extraction efficiency depends on individual plasmid copy number and target gene induction parameters.
2. For verification of isolated clones, concurrent subculturing on selective solid agar media is strictly recommended.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature parameters.

Directions

INSTRUCTIONS FOR USE : Suspend 47.6 g in 1 L of demineralized water. Add 4 ml of glycerol. Autoclave for 15 min at 121^{0}C.

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Quality Control

Appearance
Sterile clear Terrific Broth in ready-to-use bottle.
Colour
Amber coloured clear solution without any visible particles or precipitation.
pH
7.00 - 7.40
Sterility Check
Passes standard pharmaceutical release criteria.
Cultural Response
Growth Promotion testing is executed rigorously with standard master cultures to confirm nutritional sufficiency and optimal expression levels.
Growth promoting properties
Clearly visible growth of microorganism comparable to that previously obtained with previously tested and approved lot of medium occurs at the specified temperature for not more than the shortest period of time specified inoculating <=100 cfu (at 42-44°C for <= 24 hours).
Inhibitory properties
Clearly visible, dense biomass growth of microorganism comparable to that previously obtained with previously tested and approved reference lot occurs at the specified incubation temperature for not more than the shortest period of time specified inoculating <=100 cfu (at 35-37°C for <= 18-24 hours).

Organism	Inoculum (CFU)	Growth	Incubation temperature	Incubation period
Escherichia coli ATCC 25922 (00013*)	50 -100	Luxuriant (High density biomass)	35 - 37 °C	18 - 24 hrs
Escherichia coli ATCC 8739 (00012*)	50 - 100	Luxuriant (High density biomass)	35 - 37 °C	18 - 24 hrs

Key : (*) Corresponding WDCM numbers,

Storage and Shelf Life

On receipt store between 15-30°C. Use before expiry date on the label. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (7,8).

Further Reading

1. Tartoff, K.D. and Hobbs, C.A. (1987) Improved Media for Growing Plasmid and Phage DNAs. Bethesda Res. Lab. Focus 9: 12.
2. Sambrook, J., Fritsch, E.F. and Maniatis, T. (1989) Molecular Cloning: A Laboratory Manual, Cold Spring Harbor Laboratory Press.
3. The United States Pharmacopoeia, 2022, The United States Pharmacopeial Convention. Rockville, MD.
4. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
- The product conform solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at **CDH** is true and accurate
- **Central Drug House Pvt. Ltd.** reserves the right to make changes to specifications and information related to the products at any time.
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- Do not use the products if it fails to meet specifications for identity and performancs parameters.