ARENA
BioScien

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WL Nutrient Medium

Recommended for cultivation and isolation of microorganisms encountered in brewing and industrial fermentation Processes.

REF: BS.1/TG01.100.0100	100 Gram	REF: BS.1/TG01.250.0250	250 Gram
REF: BS.1/TG01.500.0500	500 Grams		

CLINICAL SIGNIFICANCE

WL (Wallerstein Laboratory) media are formulated as described by Green and Gray for the examination of materials encountered in brewing and for industrial fermentations containing mixed flora of yeast and bacteria (1, 2). Bakers yeast counts can be carried out in this medium at a pH 5.5. By adjusting the pH to 6.5, the medium can be used for obtaining counts of Baker and distillers yeast (3). WL Nutrient and WL Differential Media are used in combination. One plate of WL Nutrient Agar and two plates of WL Differential Agar are prepared (3). The WL Nutrient Agar plate is incubated aerobically to give a total yeast count while one WL Differential Agar plate gives the count of acetic acid bacteria, Flavobacterium, Proteus and thermophilic bacterial count when incubated aerobically. The other WL Differential Agar Plate is incubated anaerobically for the growth of lactic acid bacteria and Pediococcus. While determining microbial counts using these media, temperature and time of incubation will vary depending on the nature of material under test. Temperatures of 25°C are employed for brewing materials while 30°C are employed for baker's yeast and alcohol fermentation mash analyses. Yeast extract which serves as a source of trace elements, vitamins and amino acids. Tryptone is used as a source of nitrogen, amino acids and carbon. Dextrose is the source of carbohydrate. Buffering of the medium is done by potassium dihydrogen phosphate. Potassium chloride, calcium chloride and ferric chloride are essential ions that help to maintain the osmotic balance. Magnesium sulphate and manganese sulphate are sources of divalent cations. Bromo cresol green is a pH indicator.

MEDIA COMPOSITION

Item	Formula per liter of medium
Tryptone	5.0 gm.
Yeast Extract	4.0 gm.
D(+)-Glucose	50.0 gm.
Potassium dihydrogen phosphate	0.550 gm.
Potassium chloride	0.425 gm.
Calcium chloride anhydrous	0.125 gm.
Magnesium sulphate	0.125gm
Ferric chloride	0.0025 gm
Manganese sulphate	0.0025 gm
Bromo cresol green	0.022 gm
Agar	20.0 gm

Final pH 5.5 ± 0.2 at 25°C

PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person. Do not ingest or inhale.

Good Laboratories practices using appropriate precautions should be followed in:

- Wearing personnel protective equipment (overall, gloves, glasses,).
- Do not pipette by mouth.
- In case of contact with eyes or skin; rinse immediately with plenty of soap and water. In case of severe injuries; seek medical advice immediately.
- Respect country requirement for waste disposal.
  S56: dispose of this material and its container at hazardous or special waste collection point.
  S57: use appropriate container to avoid environmental contamination.
  S61: avoid release in environment.

For further information, refer to the WL Nutrient Medium material safety data sheet.

STORAGE AND STABILITY

BioScien WL Nutrient Medium should be stored between 10-30°C in a firmly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to avoid lump development due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in a dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

PREPARATION

Suspend 80.25 grams in 1000 ml purified / distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. If desired, to obtain a pH of 6.5, add 1% solution of sodium bicarbonate before sterilization. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Deterioration

The color of ***BioScien*** WL Nutrient Medium is Light yellow to light green homogeneous free flowing powder. Prepared Media Bluish green coloured very slightly opalescent gel forms in Petri plates. If there are any physical changes for powder or signs of deterioration (shrinking, cracking, or discoloration), and contaminations for hydrated media, discard the medium.

SPECIMEN

Brewing sample

EQUIPMENT REQUIRED NOT PROVIDED

- Inoculating loops, swabs, collection containers

- Incubators
- Sterile petri plates
- Anaerobic chamber / anaerobic jars

QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control still out of range please contact ***BioScien*** technical support

PERFORMANCE CHARACTERISTICS

Cultural characteristics observed after an incubation at 25-30°C for 40-48 hours.

Organism	Result
Lactobacillus fermentum ATCC 9338	Fair to good
Saccharomyces uvarum ATCC 9080	Luxuriant
Proteus mirabilis ATCC 25933	Fair to good
Saccharomyces cerevisiae ATCC 9763	Luxuriant
Escherichia coli ATCC 25922	Fair to good

SYMBOLS IN PRODUCT LABELLING	
LOT Batch Code/Lot number	Caution
REF Catalogue Number	Do not use if package is damaged
Temperature Limitation	Consult Instruction for use
Expiration Date	
Manufactured by	

REFERENCES

1. Green S. R. and Gray P. P., 1950, Wallerstein Lab. Commun., 12:43
2. Green S. R. and Gray P. P., 1950, Wallerstein Lab. Commun., 13:357
3. MacFaddin J. F., 1985, Media for Isolation- Cultivation- Identification- Maintenance of Medical Bacteria, Vol.1,Williams & Wilkins, Baltimore, Md.

4.Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.

5.Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.