



WL Nutrient Broth

M050

WL Nutrient Broth is recommended for selective isolation and enumeration of bacteria encountered in breweries and industrial fermentations.

Composition**

| Ingredients | Gms / Litre |
|----------------------------|-------------|
| Casein enzymic hydrolysate | 5.000 |
| Yeast extract | 4.000 |
| Dextrose | 50.000 |
| Monopotassium phosphate | 0.550 |
| Potassium chloride | 0.425 |
| Calcium chloride | 0.125 |
| Magnesium sulphate | 0.125 |
| Ferric chloride | 0.0025 |
| Manganese sulphate | 0.0025 |
| Bromo cresol green | 0.022 |
| Final pH (at 25°C) | 5.5±0.2 |

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 60.25 grams in 1000 ml distilled water. Heat if necessary, 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.

Principle And Interpretation

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). If desired Durhams tubes can be added to WL Nutrient Broth to study fermentation reactions.

Yeast extract serves as a source of trace elements, vitamins and amino acids. Casein enzymic hydrolysate is used as a source of nitrogen, amino acids and carbon. Dextrose is the source of carbohydrate. Buffering of the medium is done by monopotassium 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.

Quality Control

Appearance

Ligh yellow to light green homogeneous free flowing powder

Colour and Clarity of prepared medium

Bluish green coloured very slightly opalescent solution in tubes.

Reaction

Reaction of 6.02% w/v aqueous solution at 25°C. pH : 5.5±0.2

pH

5.30-5.70

Cultural Response

M050: Cultural characteristics observed in tubes containing inverted Durham's tubes after an incubation at 35-37°C for 40-48 hours for bacteria and at 30-32°C upto 5 days for yeast.

| Organism | Inoculum (CFU) | Growth | Acid | Gas |
|----------|-------------------|--------|------|-----|
|----------|-------------------|--------|------|-----|

Cultural Response

| | | | | |
|---|--------|-----------|----------------------------------|-------------------|
| <i>Escherichia coli</i> ATCC 25922 | 50-100 | fair-good | positive reaction, yellow colour | positive |
| <i>Lactobacillus fermentum</i> ATCC 9338 | 50-100 | fair-good | positive reaction, yellow colour | slightly positive |
| <i>Saccharomyces cerevisiae</i> ATCC 9763 | 50-100 | good | positive reaction, yellow colour | positive |

Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

Reference

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.

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