Medical laboratories media is used as a general purpose medium for the cultivation of less fastidious microorganisms.

**Nutrient Agar**

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| REF: V.1/NA01.100.0100 100 gram REF: V.1/NA01.250.0250 250 gram |  REF: V.1/NA01.500.0500 500 gram  |

# CLINICAL SIGNIFICANCE

# Nutrient Agar medium used for the cultivation of microbes supporting growth of a wide range of non-fastidious organisms. Nutrient agar is popular because it can grow a variety of types of bacteria and fungi, and contains many nutrients needed for the bacterial growth.

# METHOD PRINCIPLE

# Nutrient media are basic culture media used for maintaining microorganisms, cultivating fastidious organisms by enriching with serum or blood and are also used for purity checking prior to biochemical or serological testing. Nutrient Agar is ideal for demonstration and teaching purposes where a more prolonged survival of cultures at ambient temperature is often required without risk of overgrowth that can occur with more nutritious substrate. This relatively simple formula has been retained and is still widely used in the microbiological examination of variety of materials and is also recommended by standard methods. It is one of the several non-selective media useful in routine cultivation of microorganisms. It can be used for the cultivation and enumeration of bacteria which are not particularly fastidious. Addition of different biological fluids such as horse or sheep blood, serum, egg yolk etc. makes it suitable for the cultivation of related fastidious organisms. Peptone, HM peptone B and yeast extract provide the necessary nitrogen compounds, carbon, vitamins and also some trace ingredients necessary for the growth of bacteria. Sodium chloride maintains the osmotic equilibrium of the medium.

# MEDIA COMPOSITION

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| **Item**  | **Formula in g/L**  |
| Yeast extractPeptone Beef extractSodium chlorideAgar  | 1.551.5515 |

##

## Final pH 7.4 ± 0.2 at 25°C

# PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person.

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.
* Handle specimens and inoculated culture bottles as though capable of transmitting infectious agents. All inoculated culture bottles, specimen collection needles, and blood drawing devices should be decontaminated according to 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 Nutrient Agar material safety data sheet.

# MEDIA STORAGE AND STABILITY

**Lab.Vie**. Nutrient Agar 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.

##  PROCEDURE

## Dissolve 28 grams in 1 liter of distilled water.

## Adjust pH to 7.4 ± 0.2 at 25°C.

## Mix well and dissolve by heating.

## Boil for one minute until complete dissolution.

## Sterilize in autoclave at 121°C for 15 minutes.

## Cool to 45-50°C, mix well and dispense into plates.

## Deterioration

**Lab.Vie**. Nutrient Agar medium is cream to yellow homogeneous free flowing powder. If there are any physical changes, discard the medium.

Media should not be used if there are any signs of deterioration (shrinking, cracking, or discoloration), and contaminations.

**SPECIMEN COLLECTION AND PRESERVATION**

# For clinical samples follow appropriate techniques for handling specimens as per established guidelines (11,12). For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (9,10,13). After use, contaminated materials must be sterilized by autoclaving before discarding.

# TYPE OF SPECIMEN

# Clinical samples - faeces, urine ; Food and dairy samples; Water samples

# EQUIPMENT REQUIRED NOT PROVIDED

# Sterile cups

# Sterile Plates

# Incubator

# Autoclave

# QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control values are found outside the defined range, check the system performance. If control still out of range please contact the technical support.

# PERFORMANCE CHARACTERISTICS

The following organisms are used by us as part of the quality assurance of the product. The total inoculum challenge for each test organism per bottle is 10 to 50 colony forming units (CFU’s).

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| --- | --- | --- |
| **Microorganism**  | **Result**  | **Colony Color**  |
| *Escherichia coli ATCC 25922*  | Luxuriant growth  | Red with black centers  |
| *Pseudomonas aeruginosa ATCC 27853* | Luxuriant growth  | Red with black centers  |
| *Salmonella Typhi ATCC 6539* | Luxuriant growth  | Red with black centers  |
| *Staphylococcus aureus subsp.aureus ATCC 25923*  | Luxuriant growth  | Red with black centers  |
| *Streptococcus pyogenes ATCC 19615* | Luxuriant growth  | Red  |
| *Salmonella Enteritidis* *ATCC 13067* | Luxuriant growth  | Red with black centers  |
| *Salmonella Typhimurium ATCC 14028* | Good growth  | Red  |
| *Yersinia enterocolitica ATCC 9610* | Luxuriant growth  | Red  |
| *Yersinia enterocolitica* *ATCC 23715* | Inhibited  | -  |

# REFERENCES

1. Baird R.B., Eaton A.D., and Rice E.W., (Eds.), 2015, Standard Methods for the Examination of Water and Wastewater, 23rd ed., APHA, Washington, D.C
2. American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed., Washington D.C.
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
4. 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.
5. MacFaddin J. F., 2000, Biochemical Tests for Identification of Medical Bacteria, 3rd Ed., Lippincott, Williams and

Wilkins,Baltimore.

1. Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.

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| **SYMBOLS IN PRODUCT LABELLING**  |
|   IVD For in-vitro diagnostic use  |   Number of <n> test in the pack  |
|  LOT Batch Code/Lot number  | A black and white triangle with a exclamation mark  Description automatically generated Caution  |
|  REF Catalogue Number  | Do not use if package is damaged   |
|   Temperature Limitation   Expiration Date   Manufactured by  |  Consult Instruction for use      |

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**Post code-41511**

 **E-mail :** **admin@labvielab.com**

 **Website:** [**www.labvielab.com**](http://www.labvielab.com)