

Antibiotic Medium N° 5

Cat. 1524

For the test of streptomycin.

Practical information

Applications	Categories
Antibiotic Assay	Base layer

Industry: Pharmaceutical/Veterinary

Principles and uses

Antibiotic Medium N° 5 is the standard agar base used for the microbiological assay of antibiotics like streptomycin due to its pH.

The activity (potency) of an antibiotic can be demonstrated under suitable conditions by its inhibitory effect on microorganisms. Reduction in antimicrobial activity may reveal changes not demonstrated by chemical methods. The antibiotic media are identified numerically with names assigned by Grove and Randall in "Assay methods of antibiotics". The use of standardized culture media and strict control of all test conditions are essential requirements in the microbiological assay of antibiotics in order to obtain satisfactory test results.

This medium has the same formula as Antibiotic Medium N° 8 (Cat. 1004) and Antibiotic Medium N° 2 (Cat. 1002), with the difference that the pH of the medium has been adjusted to 7,9. To carry out the antibiotic test, the Antibiotic Medium should be prepared on the same day as the test is done. The sample can be tested by the two methods of dilution and assay plate diffusion.

Gelatin peptone and beef extract provide nitrogen, vitamins, minerals and amino acids essential for growth. Yeast extract is source of vitamins, particularly the B-group. Bacteriological Agar is the solidifying agent.

Formula in g/L

Bacteriological agar	15	Gelatin peptone	6
Beef extract	1,5	Yeast extract	3

Preparation

Suspend 25,5 grams of the medium in one liter of distilled water. Mix well and dissolve by heating with frequent agitation. 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.

Instructions for use

- Liquefy a the medium and inoculate it at a suitable temperature, for the example 48 °C to 50 °C, with a known quantity of a suspension of microorganism sensitive to the antibiotic to be examined.
- Agitate the mixture gently to produce a homogeneous distribution and immediately pour into Petry dishes a quantity of the inoculated medium to form a layer 2-5 mm thick. Alternatively, the medium may consist of 2 layers, only the upper layer being inoculated.
- Prepare a solution of the reference substance and of the antibiotic to be examined having known concentrations and presumed to be equal activity.
- Apply the solutions to the surface of the medium, for example, in sterile cylinders of porcelain, stainless steel, or in cavities prepared in the agar.
- The same volume of the solution must be added to each cylinder or cavity.
- Alternatively, use a sterile absorbent paper disc, impregnate the discs with the solutions of the reference substance or the solutions of the antibiotics to be examined and place on the surface of the agar.

Quality control

Solubility	Appearance	Color of the dehydrated medium	Color of the prepared medium	Final pH (25°C)
w/o rests	Fine powder	Cream	Amber, slightly opalescent	7,9±0,1

Microbiological test

Incubation conditions: (35±2 °C / 18-24 h).

Microrganisms	Specification	Inhibition Zones
Bacillus subtilis ATCC 6633	Good growth	Gentamicin, streptomycin

Storage

Temp. Min.: 2 °C
Temp. Max.: 25 °C

Bibliography

Grove and Randall. Assay Methods of Antibiotics, Medical Encyclopedia Inc. New York 1955. United States Pharmacopoeia Convention. 1955. The United States Pharmacopoeia, 23rd Ed. Biological Tests and Assays, p. 1690-1 696. The United States Pharmacopoeia Convention, Rockville, Md.