

R2A AGAR

R2A Agar is used for enumerating heterotrophic organisms in treated potable water.

DESCRIPTION

R2A Agar was developed by Reasoner and Geldreich for bacteriological plate counts of treated potable water. A low nutrient medium, such as R2A Agar, in combination with a lower incubation temperature and longer incubation time stimulates the growth of stressed and chlorine-tolerant bacteria. Nutritionally rich media, such as Plate Count Agar (Standard Methods Agar), support the growth of fast-growing bacteria but may suppress slow growing or stressed bacteria found in treated water. When compared with nutritionally rich media, R2A Agar has been reported to improve the recovery of stressed and chlorine-tolerant bacteria from drinking water systems. R2A Agar is recommended in standard methods for pour plate, spread plate and membrane filter methods for heterotrophic plate counts.

PRINCIPLE

Yeast extract provides a source of trace elements and vitamins. Peptone and casamino acids provide nitrogen, vitamins, amino acids, carbon and minerals. Dextrose serves as a carbon source. Soluble starch aids in the recovery of injured organisms by absorbing toxic metabolic by-products. Sodium pyruvate increases the recovery of stressed cells. Potassium phosphate is used to balance the pH and provide phosphate. Magnesium sulfate is a source of divalent cations and sulfate. Agar is the solidifying agent.

COMPOSITION	g/L
Yeast Extract	0.5
Proteose Peptone No. 3	0.5
Casamino Acids	0.5
Dextrose	0.5
Soluble Starch	0.5
Sodium Pyruvate	0.3
Dipotassium Phosphate	0.3
Magnesium Sulfate	0.05
Agar	15.0

Final pH 7,2 ± 0,2 at 25°C

WARNING AND PRECAUTIONS

For in vitro diagnostic use.

Observe the precautions normally taken when handling laboratory reagents.

Dehydrated medium: HIGHLY HYGROSCOPIC. During the handling, wear dust protection mask. Avoid the eye contact. Do not use beyond the expiration date or if the product shows signs of deterioration, an altered color or has compacted.

Prepared Medium: The product does not contain hazardous substances in concentrations exceeding the limits set by current legislation and therefore is not classified as dangerous.

Safety Data Sheet is available on request for professional users.

All waste must be disposed of according to local directives.

STORAGE AND STABILITY

Dehydrated medium:	10-30°C
Prepared medium:	10-25°C

The product is stable until the expiration date indicated on the label under the recommended storage conditions.

PREPARATION

Dehydrated medium: Suspend 18.1 g of the powder in 1 liter of distilled or deionized water. Mix well. Heat to boil shaking frequently until completely dissolved. Sterilize in autoclave at 121°C for 15 minutes.

Prepared medium (bottles): Melt the content of the bottle in a water bath at 100°C until completely dissolved. Then screw the cap and check the homogeneity of the dissolved medium, if it is the case turning the bottle upside down. Cool at 45-50°C, mix well avoiding foam formation and aseptically distribute into Petri dishes.

PROCEDURE

1. Perform serial dilutions of the water sample in order to achieve a suitable colony count and prepare two sets of plates for each dilution.
2. Inoculate the medium by pour plating, spread plating or membrane filtration method. RODAC plates can also be used directly on surfaces to assess the efficacy of cleaning and sanitization procedures as part of the overall microbiological monitoring program.
3. Incubate aerobically one set of plates at 30-35°C for 3-5 days and the other set at 20-25°C for 5-7 days.

NB. Incubation conditions may vary depending on the organisms under study. Generally, a lower incubation temperature and longer incubation period, stimulates the growth of stressed and chlorine-tolerant bacteria.

RESULTS

Report the count as CFU/ml of sample allowing for dilution factors and noting incubation time and temperature.

QUALITY CONTROL

Dehydrated medium: free-flowing, homogeneous, light beige.

Prepared medium: slightly opalescent with a slight precipitate, light amber.

Incubation conditions: aerobic, 32.5 ± 2.5°C for up to 3 days (bacteria) and at 22.5 ± 2.5°C for 5-7 days (yeasts and moulds).

MICROORGANISM	GROWTH
Pseudomonas aeruginosa ATCC 9027	Good
Bacillus subtilis ATCC 6633	Good
Enterococcus faecalis ATCC 19433	Good
Escherichia coli ATCC 8739	Good
Staphylococcus aureus ATCC 6538	Good
Candida albicans ATCC 10231	Good
Aspergillus brasiliensis ATCC 16404	Good

REFERENCES

1. European Pharmacopoeia 7.0 (2009) Water For Injections / Water, Highly Purified.
2. Clesceri, L.S., A.E. Greenberg, and A.D. Eaton (1998) Standard Methods for the Examination of Water and Wastewater. 20th ed. American Public Health Association, Washington, D.C.
3. Reasoner, D.J. and E.E. Geldreich (1985) Appl. Environ. Microbiol. 49:1-7.

PRESENTATION

	Packaging	REF.
Dehydrated medium: R2A AGAR	100 g (5.5 L)	11500
	500 g (27.6 L)	10500
Prepared medium: R2A AGAR	6 x 100 mL bottles	64250
	12 x 200 mL bottles	70056
	20 pcs (60 mm ready-to-use plates)	1902402/20

SYMBOLS

Read the instructions	Biological hazard
CE Mark (product complies with the requirements of Regulation (EU) 746/2017)	
Temperature limitation	Use by
For in vitro diagnostic use	Manufacturer