

PA (Presence-Absence) Broth

Dehydrated medium for the detection of coliform bacteria in water

TYPICAL FORMULA (g/L)

Meat extract.....	3.0
Peptone.....	5.0
Lactose.....	7.46
Tryptose.....	9.83
Dipotassium Hydrogen Phosphate.....	1.35
Potassium dihydrogen phosphate.....	1.35
Sodium chloride.....	2.46
Sodium lauryl sulphate.....	0.05
Bromocresol purple.....	0.0085
Final pH	6.8 ± 0.2

DESCRIPTION

PA (Presence-Absence) Broth is a selective medium for the detection of coliform bacteria in water. It is prepared according to the recommendations of standard methods (US-EPA) for the examination of water.

PRINCIPLE

Peptones and meat extract give the nutrients and trace elements required for growth whereas the phosphate buffer and sodium chloride provide a good buffering capacity and the osmotic equilibrium. Lactose-fermenting organisms form acid which is identified by the pH indicator bromocresol purple as a color change from purple to yellow.

The selective component of the culture medium is sodium lauryl sulphate which largely inhibits the undesired accompanying flora-with the exception of the coliforms.

PREPARATION

1. Dissolve completely 91.5 g in 1 liter of distilled water, for the preparation of the triple strength concentrated broth.
2. Mix thoroughly.
3. Warm gently to completely dissolve the powder.
4. Fill 50 mL quantities in 250mL milk dilution bottles with screw caps.
5. Autoclave for 12 min. at 121°C, with total autoclave time not to exceed 30 minutes.
6. Allow broth to cool to room temperature .

TECHNIQUE

1. Collect water samples as described in recommended procedures^(1,10)
2. Add 100mL water samples to the milk dilution bottles filled with 50 mL of triple strength concentrated broth.
3. Mix well.
4. Incubate at 35 +/- 0.5°C for up to 48 hours with a loose screw-cap in aerobic condition.
5. Read results after 24 hours and 48 hours.

INTERPRETATION OF RESULTS

Lactose-positive organisms form acid due to the fermentation of the lactose which colors the broth yellow. Gas formation can occur. To identify gas formation, the bottles are shaken gently and inspected to see if a foaming reaction occurs. All samples with acid and/or acid and gas formation are presumptive-positive and are inoculated for confirmation in Brilliant Green Bile Broth 2% (code 610010).

If gas formation occurs during the incubation of 48 +/-3 hours at 35 +/- 0.5 °C, this can be seen as confirmation of the presence of coliforms in the 100 mL water sample.

STORAGE

The powder is very hygroscopic: store the powder at 10-30°C, in a dry environment, in its original container tightly closed and use it before the expiry date on the label or until signs of deterioration or contamination are evident.

Store prepared media at 2-8°C.

WARNING and PRECAUTIONS

The product is not classified as hazardous by current legislation and does not contain harmful substances in concentrations of ≥1%. The product must be used only by properly trained operators.

DISPOSAL of WASTE

Disposal of waste must be carried out according to national and local regulations in force.

REFERENCES

1. Federal Register. 1989. National primary drinking water regulations; total coliforms (including fecal coliforms and e. coli). Fed. Regist. 54; 27544-27568.
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3. Eaton, A. D., Clesceri L. S. and Greenberg A. E. (ed.). 1995. Standard methods for the examination of water and wastewater, 19th. Ed. Am. Public Health Ass. Washington D.C.
4. Clark, J. A. 1968. A presence absence (P-A) test, providing sensitive and inexpensive detection of coliforms and faecal streptococci in municipal drinking water supplies. Can. J. Microb. 14: 13-18.
5. Clark, J. A. 1969 The detection of various bacteria indicative of water pollution by a presence-absence (P-A) procedure. Can. J. Microbiol. 15: 771 780.
6. Clark, J. A. and Flassov L. T. 1973 Relationships among pollution indicator bacteria isolated from raw water and distribution systems by the presence-absence (P-A) test. Health. Lab. Sci. 10:163 172.
7. Clark, J. A. and Pagel J. E. 1977 Pollution indicator bacteria associated with municipal raw and drinking water supplies. Can. J. Microbiol. 23: 465-470.
8. Clark, J. A., Burger C. A. and Sabatinos L. E. 1982 Characterization of indicator bacteria in municipal raw water, drinking water and new main water samples. Can. J. Microbiol. 28: 1002-1013.
9. Jacobs, Leigler, Reed, Stukel and Rice. 1986 Appl. Environ. Microbiol. 51: 1007.



LIOFILCHEM Bacteriology Products

64026 ROSETO D.A. (TE) ITALY- Via Scozia- Zona Ind.le

Tel.+39 085 8930745 - Fax +39 085 8930330

Sito Web: <http://www.liofilchem.net> E-Mail: liofilchem@liofilchem.net

10. Clesceri, Greenberg and Eaton (ed.) 1998. Standard methods for the examination of water and wastewater, 20th ed. American Public Health Association, Washington, D.C.



TECHNICAL SHEET
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PRODUCT SPECIFICATIONS

NAME

PA (PRESENCE – ABSENCE) BROTH

PRESENTATION

Dehydrated culture medium

STORAGE

10-30°C

PACKAGING

Code	Content	Packaging
610137	500 gr	500 gr of powder in plastic bottle
620137	100 gr	100 gr of powder in plastic bottle

pH OF THE MEDIUM

6.8 ± 0.2

USE

PA (Presence-Absence) Broth is a selective medium for the detection of coliform bacteria in water. It is prepared according to the recommendations of standard methods (US-EPA) for the examination of water.

TECHNIQUE

Refer to technical sheet of the product.

APPEARANCE of the MEDIUM

Dehydrated medium

Appearance: free-flowing, homogeneous.

Colour: beige

Prepared medium

Appearance: slightly opalescent

Colour: purple

SHELF LIFE

4 years

QUALITY CONTROL

- Control of general characteristics, label and print
- Sterility control
7 days at 25 ± 1°C, in aerobiosis
7 days at 36 ± 1°C, in aerobiosis
- Microbiological control
Inoculum for productivity: 10-100 UFC/ml
Inoculum for selectivity: 10⁴-10⁵ UFC/ml
Inoculum for specificity: ≤ 10⁴ UFC/ml
Incubation conditions: 48 +/- 3 hours at 35 +/- 0.5°C, in aerobiosis

Microorganisms		Growth	Medium color	Gas formation in BRILLIANT GREEN BILE BROTH 2%
<i>Escherichia coli</i>	ATCC 25922	Good	Yellow	+
<i>Enterococcus faecalis</i>	ATCC 29212	Medium	Yellow	-
<i>Pseudomonas aeruginosa</i>	ATCC 27853	Poor/Medium	Purple	-

TABLE of SYMBOLS

Symbol	Meanings
	Catalogue number
	Manufacturer
	Temperature limitation
	Contains sufficient for <n> tests
	Use by
	Batch code
	Consult accompanying documents
	Do not reuse



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64026 ROSETO D.A. (TE) ITALY- Via Scozia- Zona Ind.le

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Sito Web: <http://www.liofilchem.net> E-Mail: liofilchem@liofilchem.net