Azide Dextrose Broth

Used as a preliminary test for enterococci and also for their selective enrichment.

Mode of Action

The concentration of sodium azide present in this medium largely inhibits the growth of the accompanying Gram-negative microbial flora, while sparing the enterococci.

The use of sodium azide as a selective inhibitor for Gram-negaKTtive bacteria was reported in the studies of EDWARDS (1933, 1938) and HARTMANN (1936) on the isolation of Str. agalactiae. MALLMANN (1940) and SNYDER and LICHSTEIN (1940) later showed that sodium azide can also be used for the isolation of enterococci from water.

The presence of enterococci (Enterococcus faecalis, S. durans, S. bovis and S. equinus) serves as an indicator for faecal contamination, particularly when this took place a long time ago and the less resistant coliform bacteria, including E. coli, may be already dead when the analysis is carried out.

Typical Composition (g/litre)

Peptone from casein 15.0; meat extract 4.5; D(+)glucose 7.5; sodium chloride 7.5; sodium azide 0.2.

Preparation

Suspend 35 g or 70 g/litre, dispense into suitable vessels, autoclave (15 min at 121 °C). Do not overheat.

pH: 7.2 ± 0.2 at 25 °C.

The prepared broth is clear and yellowish-brown.

Experimental Procedure

Small sample volumes (up to 1 ml) can be added to the normal strength broth. Larger volumes (10 ml or more) should be diluted with an equal volume of the double-strength broth.

Incubation 24-48 hours at 35 °C aerobically.

If the broth becomes turbid due to microbial growth it is likely that enterococci are present. The culture should then be inoculated into Bromocresol-purple Azide Broth. If this broth does not become turbid enterococci are not present.

Literature

American Public Health Association, American Water Works Association and Water Pollution Control Federation: Standard Methods for the Examination of Water and Wastewater, 20th ed., Washington, 1998.

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LITSKY, W., MALLMANN, W.L., a. FIFIELD, C.W.: A new medium for the detection of enterococci in water. - Amer. J. Publ. Hlth., 43; 873-879 (1953).

HARTMANN, G.: Ein Beitrag zur Reinzüchtung von Mastitisstreptokokken aus verunreinigtem Material. - Milchw. Forsch., 18; 116-122 (1936).

MALLMANN, W.L.: A new yardstick for measuring sewage pollution. - Sewage Works J., 12; 875-878 (1940).

SNYDER, M.L., a. LICHSTEIN, H.C.: Sodium azide as an inhibiting substance for Gram-negative bacteria. - J. Infect. Dis., 67; 113-115 (1940).

Verordnung über Trinkwasser und über Wasser für Lebensmittelbetriebe (Trinkwasserverordnung) vom 22. Mai 1986. - Bundesgesetzblatt, Teil I, 760-773 (1986).

Ordering Information

Product	Ordering No.	Pack size
Azide Dextrose Broth	1.01590.0500	500 g

100 ml sample into 100 ml of double-strengh Azide Dextrose Broth

Quality control

Test strains	Growth
Enterococcus faecalis ATCC 11700	good / very good
Enterococcus faecalis ATCC 19433	good / very good
Enterococcus hirae ATCC 8043	good / very good
Streptococcus bovis DSMZ 20065	fair / very good
Staphylococcus aureus ATCC 25923	none / poor
Escherichia coli ATCC 25922	none / poor
Pseudomonas aeruginosa ATCC 27853	none / poor