

TBL 027 - NITRATE DISCS

INTENDED USE

Substrate for nitrate reduction.

PRODUCT SUMMARY AND PRINCIPLE

The test involves detection of the enzyme nitrate reductase which causes the reduction of nitrate in the presence of a suitable electron donor to nitrite, which can be tested by an appropriate colorimetric reagent. Almost all Enterobacteriaceae reduce nitrate. Nitrate disc contains potassium nitrate as substrate which is broken down to nitrite when nitrate reductase positive culture is grown in presence of these discs. Nitrite production can be detected by using Nitrate Test Reagents - a-naphthylamine and Sulphanilic acid. Reduction of nitrate (NO₃) to nitrite (NO₂) and subsequently to nitrogen gas (N₂) usually takes place under anaerobic conditions, in which an organism derives its oxygen from nitrate. Most facultative anaerobes can reduce nitrate in the absence of oxygen. This anaerobic respiration is an oxidation process in which inorganic substances furnish oxygen to serve as an electron acceptor to provide energy. The end product possibilities of nitrate reduction are many depending upon the bacterial species. The more common end product via nitrite reduction is molecular nitrogen. Depending upon environmental conditions, these products are usually not further oxidized or assimilated into cellular metabolism, but are excreted into the surrounding medium.

INSTRUCTION FOR USE

Aseptically put nitrate discs in 5 ml sterile Peptone Water inoculated with the test microorganisms. Incubate at 35-37°C for 18-24 hours. Add few drops of each reagent i.e. a-naphthylamine and Sulphanilic acid. A distinct red or pink colour indicates nitrate reduction. A control (uninoculated) tube should also be tested. If there is no pink colour formation, add a pinch of zinc dust to confirm the absence of nitrate in the medium.

QUALITY CONTROL SPECIFICATIONS

Appearance : Filter paper discs of 6 mm diameter bearing letters 'N' in continuous printing style.

INTERPRETATION

The Nitrate reduction reaction of various bacteria with Nitrate discs, was observed after an incubation at 35-37°C for 18-24 hours using Peptone water.

Microorganism	ATCC	Growth	Nitrate Reduction
<i>Escherichia coli</i>	8739	Luxuriant	Positive reaction: red or pink colour formation on addition of nitrate test reagents.
<i>Enterobacter aerogenes</i>	13048	Luxuriant	Positive reaction: red or pink colour formation on addition of nitrate test reagents.



<i>Salmonella</i> Typhimurium	14028	Luxuriant	Positive reaction: red or pink colour formation on addition of nitrate test reagents.
<i>Acinetobacter calcoaceticus</i>	43498	Luxuriant	Negative reaction

PACKAGING:

In pack size of 50 Discs/vl.

STORAGE

Store at 2 - 8°C. Use before expiry date on the label.

REFERENCES

1. Pelczar M.J. Jr., Reid R.D. (1965), Microbiology, 2nd edn., McGraw-Hill, New York, 567.
2. Stanier R.Y., Douderoff M., Adelberg E.A. (1963), The Microbial World, 2nd edition, Prentice - Hall, 116-117.
3. MacFaddin J. F., (Ed) 2000, Biochemical Tests for Identification of Medical Bacteria, 3rd ed., Philadelphia: Lippincott. Williams and Wilkins

 GMP Good Manufacturing Practices Certified	 IVD For In Vitro Diagnostic Use	 QTY. Quantity	 LOT/ B. NO. Lot / Batch Number	 REF Catalogue Number	 Manufacturer
 Temperature Unit	 EC REP Authorized Representative	 European Conformity	 QR Code	 Consults Instructions for Use	 Best Before

NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

*For Lab Use Only
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