Mast House, Derby Road, Bootle, Merseyside L20 1EA, United Kingdom.
Tel: +44 (0)151 933 7277 Fax: +44 (0)151 944 1332
www.mastgrp.com

MAST ID™ OXIDASE DISCS

A disc test for the rapid detection of oxidase positive bacteria.

Introduction

The enzyme cytochrome oxidase is characteristically produced by a number of micro-organisms, including *Neisseria* and *Pseudomonas*, and is a useful differential feature in the classification and presumptive identification of these bacterial genera[1]. Cytochrome oxidase is an iron porphyrin which oxidises reduced cytochrome C_2 and is thus itself reduced. It is reconverted to an active form by the transfer of electrons to molecular oxygen. The oxidase test is based on the ability of the enzyme to produce the dye indophenol blue from the oxidation of *N,N,N',N'*-tetramethyl-1,4-phenylenediamine. The MAST disc test is based on the method described by Kovacs[2] which was further developed by Gaby and Hadley[3] into a useful laboratory test. The addition of ascorbic acid as recommended by Steel[4] reduces the tendency of the reagent to auto-oxidise.

Description

MAST ID™ OXIDASE Discs are filter paper discs printed with appropriate letter code and impregnated with carefully controlled concentrations of *N,N,N',N'*-tetramethyl-1,4-phenylenediamine and ascorbic acid. The discs are printed on both sides for easy identification.

In Use

1. Place one MAST ID™ OXIDASE Disc onto a suitable surface e.g. a microscope slide and choose a well-separated and representative colony from the culture under test. It is preferable to use young, fresh, cultures as older growth may produce unreliable results.
2. Remove the chosen colony from the culture plate. **DO NOT USE A NICHROME WIRE LOOP AS THIS WILL PRODUCE FALSE POSITIVE REACTIONS**.
3. Gently massage the colony onto the disc and observe for the development of a deep purple colour within 10 seconds.
4. Alternatively, prepare a suspension of test organism equivalent in density to the McFarland number 3 opacity standard in sterile distilled or deionised water. Place 1ml of suspension into a sterile tube and add one MAST ID™ OXIDASE Disc. Gently shake the tube and leave at room temperature for 10 minutes and observe for development of a deep purple colour.

Precautions

Organisms which have produced acid from carbohydrate fermentation e.g. having been grown on MacConkey agar should be subcultured to another medium before testing.

Colonies picked from media containing nitrates may produce unreliable results.

Media containing a high proportion of blood may yield false positive results.

Interpretation

1. Colourless - Organisms which remain colourless or produce a colour change after the times specified for each test method are considered Oxidase Negative.
2. Deep violet /purple - Organisms producing a colour change within the times specified for each test method are considered Oxidase Positive.

Examples Of Expected Results

Oxidase Positive	Oxidase Negative
Pseudomonas spp.*	*Acinteobacter*
Vibrio spp.*⁎	*Shigella sonnei*
Neisseria spp.	*Escherichia coli*
Moraxella spp.	*Staphylococcus aureus*

*Except *V.metschnikovii*

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Packaging and Ordering Details

6 x 50 cartridge discs in a screw-top container with silica gel.

Order Code: D57C

References

1. Gordon J, McLeod JW. The practical application of the direct oxidase reaction in bacteriology. *J Pathol Bacteriol.* 1928; **31:** 185.
2. Kovacs N. Identification of Pseudomonas pyocyanea by the oxidase reaction. *Nature* 1956; **178:** 703.
3. Gaby WL, Hadley C. Practical laboratory test for the identification of Pseudomonas aeruginosa. *J Bacteriol.* 1957; **74:** 356-358.
4. Steel KJ. The oxidase reaction as a taxonomic tool. *J Gen Microbiol.* 1961; **25:** 297-306.