

Specification

Reagent for the detection and verification of bacterial cytochrome oxidase.

Presentation

	Packaging Details	Shelf Life	Storage
2 Metallic Bags 25 swabs / pack. with: N.A.	2 metal bags with self closing containing 25 swabs impregnated to oxidase reagent.	12 months	2-14 °C

Composition

Swab composition:

N-N-dimethyl-p-phenylenediamine.....10 mg

Technique:

Isolate on TSA or Nutrient A. the

identify pure culture.

Soak the swab with a colony.

Oxidase +: colony turns red-garnet

Oxidase - : colony incolora-slightly pink.

Note: close ASAP bag with

the rest of swabs, for

protect them from light and oxidation.

Description /Technique

The basis of the test is the following: Cytochromes are hemoproteins that act as oxidant enzymes in the transport chains of oxidative phosphorylation electrons. Generally, cytochromes are found just in the aerobic bacteria, whereas the strict anaerobic does not present them. Cytochrome oxidase found even in the Enterobacteriaceae is composed by a3-cytochrome. However, the substance that the Oxidase Reagent is able to reduce is c-cytochrome, thus the test just determinates the presence of c-cytochrome and therefore test is positive only for the bacteria that have c-cytochrome in their respiratory chains.

Technique:

Soak a swab with the isolated colonie which is going to be clasified. If colonies aren't well isolated, culture on TSA or Nutrien Agar for 24 hours.

The reading must be done after 20-30 seconds. The bacteria is Oxidase positive if the swab shows a Red-Dark red- Purple.

When the reaction in the colony is very slow, it has to be considered negative or very weak, since the lately appearance of colour is more attributable to the spontaneous oxidation than to the truly presence of c-cytochrome.

Note: Close recommended as soon as possible the bag with the rest of swabs, to protect them from light and oxidation.

*The product on this page is outside the scope of the EU Directive 2019/904

Quality control

Physical/Chemical control

Color : Colourless

pH: at 25°C

Microbiological control

Impregnate the swab with a pure culture recently isolated

Analytical methodology according to ISO 11133:2014/A1:2018; A2:2020.

Observe turn colony after 20-30 seconds

Microbiological control according to ISO 11133:2014/A1:2018; A2:2020.

Microorganism

Escherichia coli ATCC® 25922, WDCM 00013

Ps. aeruginosa ATCC® 9027, WDCM 00026

Ps. aeruginosa ATCC® 27853, WDCM 00025

Cronobacter sakazakii ATCC® 29544, WDCM 00214

Ps. fluorescens ATCC®13525, WDCM 00115

Growth

Oxidase negative - white to pink

Oxidase positive - garnet

Oxidase positive - garnet

Oxidase negative - white to pink

Oxidase positive - garnet

Sterility Control

Not applicable.

Bibliography

- BLAZEVIC, D.J., G.M. EDERER (1975) Principles of Biochemical Test in Diagnostic Microbiology. John Wiley Sons. NY.
- FORBES, B.A., D.F. SAHM, A.S. WEISSFELD (1998) Bailey & Scott's Diagnostic Microbiology. 10th ed. Mosby. St. Louis.
- GABY W.L., C. MARTLEY (1957) Practical laboratory test for the identification of *Pseudomonas aeruginosa*. J. Bact. 74(3):356-358.
- GORDON, J. & J.W. McLEOD (1928) The practical application of the direct oxidase reaction in bacteriology. J. Pathol. Bacteriol 31 (2):185-190.
- HARRIGAN, W.F. & M.E. McCANCE (1976) Laboratory Methods in Food and Dairy Microbiology. Academic Press. London.
- McFADDIN, J.F. (1999) Biochemical Tests for Identification of Medical Bacteria. 3rd ed. Lippincott Williams & Wilkins. Philadelphia. USA.
- STEEL, K.J. (1962) The oxidase activity of staphylococci. J. Appl. Bacteriol. 25(3):297-306.
- ISO 11133:2014/ Adm 1:2018/ Adm 2:2020/ Microbiology of food, animal feed and water. Preparation, production, storage and performance testing of culture media.