



STANTON TERRITORIAL HEALTH AUTHORITY

Yellowknife, Northwest Territories

TITLE: Catalase	Revision Date: 07-March-2016	Issue Date: 07-March-2014
Document Number: MIC50400	Status: Approved	
Distribution: Microbiology Test Manual	Page: 1 of 4	
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PURPOSE:

This test is used in the identification of Gram positive cocci to differentiate Staphylococci (catalase positive) from Streptococci (catalase negative).

INTRODUCTION:

Most cytochrome containing organisms produce a catalase enzyme which breaks down hydrogen peroxide into oxygen and water. When a small amount of a catalase producing organism is introduced into hydrogen peroxide, bubbles of oxygen form as a result of the enzyme's activity.

REAGENTS and/or MEDIA:

Type	3% Hydrogen peroxide
Stability	Do not use beyond expiry date
Storage requirement	15-30°C in a dark bottle Do not freeze or overheat

SUPPLIES:

- Glass slide
- Sterile loop or wooden stick

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SPECIAL SAFETY PRECAUTIONS:

Since viable micro-organisms are used, all cultures must be handled with appropriate precautions. All equipment in contact with cultures should be decontaminated by appropriate methods. Test reagent is an oxidizer; apply the use of proper personal protective equipment as outlined in Hydrogen Peroxide MSDS sheet.

QUALITY CONTROL:

Quality Control is set up each day the test is performed using the following control organisms:

Positive: Staphylococcus aureus ATCC# 25923
Negative: Streptococcus pyogenes ATCC# 19615

- A QC order will be generated in the TQC system

PROCEDURE INSTRUCTIONS:

Step	Action
Testing Colonies for the Presence of the Catalase Enzyme	
1	In the LIS system ORDER: ^CAT
2	Place one drop of 3% hydrogen peroxide on a glass slide.
3	Using a loop or wooden stick, touch the top of a well isolated colony.
4	Apply colony to the hydrogen peroxide on the slide.
5	Observe for bubbles.

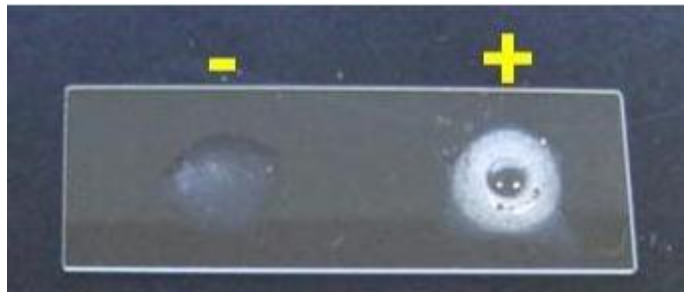
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INTERPRETATION OF RESULTS:

Positive: Presence of bubbles

Negative: Absence of bubbles



NOTES AND PRECAUTIONS:

1. Red blood cells contain catalase and contact with hydrogen peroxide will result in slow production of bubbles. Pick from centre of colony and avoid scraping surfaces of plate to prevent false positives.
2. Hydrogen peroxide is unstable and easily breaks down to water, especially when exposed to light and warm temperatures. False negative reactions will occur if reagent has completely broken down.
3. Catalase testing should be done on 18-24 hour cultures because the enzyme is present in viable cultures only. Older cultures may give false negative reactions.
4. 3% H₂O₂ is caustic – avoid exposure to skin. If H₂O₂ does get on the skin, immediately flood the area with 70% ethyl alcohol, not water.

REFERENCES:

- Murray, P., Baron, E. J., Jorgensen, J., Landry, M. L., & Pfaller, M. (2007). *Manual of Clinical Microbiology* (Vol. 1). Washington, DC, USA: ASM Press.

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REVISION HISTORY:

REVISION	DATE	Description of Change	REQUESTED BY
1.0	13 Nov 2012	Initial Release	A.Darrach
1.1	31-Jul-13	Add illustrations	A. Darrach
1.2	07-Mar-14	Change from MTE10400 to MIC50400	C. Russell