

PROGRAM Standard Operating Procedure – Laboratory Services	
Title: MIC40200 – Identification of Yeasts	Policy Number:
Program Name: Laboratory Services	
Applicable Domain: Lab, DI and Pharmacy Services	
Additional Domain(s): NA	
Effective Date:	Next Review Date:
Issuing Authority: Director, Laboratory and Diagnostic Imaging Services	Date Approved:
Accreditation Canada Applicable Standard: NA	

PURPOSE/RATIONALE:

This standard operating procedure describes the workflow and identification scheme for yeast isolates from clinical microbiology specimens.

SCOPE/APPLICABILITY:

This procedure applies to Medical Laboratory Technologists (MLTs) performing yeast identification on clinical microbiology specimens.

REAGENTS and/or MEDIA:

- CandiSelect Agar
- VITEK 2 Yeast ID card

SUPPLIES:

- 0.45% Saline
- Plastic VITEK tubes and caps
- Sterile swabs

EQUIPMENT:

- VITEK 2

ENVIRONMENTAL CONTROLS:

- Store VITEK 2 cards at 2°C to 10°C in unopened package liner
- Allow the card to come to room temperature before

QUALITY CONTROL:

- Refer to MIC60030-VITEK 2 Quality Control for VITEK 2 QC procedures
- Refer to MIC60040-Culture Media Quality Control procedure

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IDENTIFICATION OF YEAST:

Test	Result	Next step
Growth	Creamy, white colonies resembling yeast or coloured colonies on CandiSelect agar	Wet prep
Wet prep	Yeast	VITEK 2 YST ID card
VITEK 2 YST ID card results	≥90% Candida species	<ul style="list-style-type: none"> Report genus and species name IF indicated in procedure
VITEK 2 YST ID card results	<90% Candida species	<ul style="list-style-type: none"> Do not report genus and species name Ensure culture is pure and repeat YST ID card If repeat is the same, report as Yeast spp. and refer to APL IF indicated in procedure
VITEK 2 YST ID card results	Not Candida species	<ul style="list-style-type: none"> Do not report genus and species name Ensure culture is pure and repeat YST ID card If repeat is the same, report as Yeast spp. and refer to APL IF indicated in procedure

Candida albicans:

- Budding yeast cells in smear and feet in <48 hours
- Pink/purple colonies on CandiSelect Agar

Candida dublinensis:

- Is difficult to distinguish from *Candida albicans* and it is currently not recommended that laboratories routinely perform additional tests to differentiate these organisms. However, a history of clinical failure or persistence of *Candida albicans* despite therapy with fluconazole may alert the clinician that this may be *C. dublinensis*

Candida glabrata:

- Small yeasts in smear with no hyphae
- Pale turquoise colonies on CandiSelect Agar
- It is the second most common cause of vaginitis
- It is frequently isolated in cases of oropharyngeal and oesophageal candidiasis in AIDS patients, candidaemia and urinary tract infections

Candida krusei:

- Small elongated to ovoid budding yeast in smear
- Turquoise/blue colonies on CandiSelect Agar
- Is an unusual cause of vaginal infections
- Can cause serious infections, especially in immunocompromised individuals, and its intrinsic resistance to fluconazole makes it an important pathogen to monitor

Candida tropicalis:

- Appear as round or oval budding yeast cells in smear
- Intense turquoise colonies on CandiSelect Agar

Cryptococcus spp.:

- Spherical pleomorphic budding yeast with no hyphae, typically mucoid due to presence of capsular material, becoming dryer and duller with age
- CandiSelect can enable the growth of *Cryptococcus neoformans*
- *Cryptococcus* spp. are urea positive
- *Cryptococcus gattii* is difficult to distinguish from *C. neoformans*. *C. neoformans* affects mostly immunocompromised hosts (malignancy, HIV, etc.) but *Cryptococcus gattii* may cause disease in immunocompetent hosts

LIMITATIONS:

1. A study evaluated the growth of rarely isolated yeasts and filamentous fungi using strains from the laboratory's collection. CandiSelect medium enabled the growth of *Trichosporon* spp., *Geotrichum* spp., *Cryptococcus neoformans*, *Scedosporium apiospermum*, *Rhizopus* spp., *Fusarium* spp., *Aspergillus fumigatus*, *Aspergillus niger* and *Aspergillus flavus*.
2. If identification is problematic and the isolate is clinically significant, refer to APL for further identification and susceptibility testing (if required)
3. Refer the following to APL as applicable for further testing:
 - Unusual or uncommon isolates for confirmation

CROSS-REFERENCES:

- MIC60030-VITEK 2 Quality Control
- MIC60040-Culture Media Quality Control

REFERENCES:

1. Clinical Microbiology Procedures Handbook, 4th edition, ASM Press, 2016
2. Jorgensen J.H., Pfaller M.A., Carroll K.C., Funke G., Landry M.L., Richter S.S., Warnock D.W. 2015. Manual of Clinical Microbiology, 11th edition, ASM Press, Washington, D.C.
3. bioMérieux. (2021-04). VITEK 2 YST package insert
4. Bio-Rad CandiSelect 4 agar package insert, 2008/04
5. CLSI. *Abbreviated Identification of Bacteria and Yeast; Approved Guideline—Second Edition*. CLSI document M35-A2. Wayne, PA: Clinical and Laboratory Standards Institute; 2008

APPROVAL:

Date

REVISION HISTORY:

REVISION	DATE	Description of Change	REQUESTED BY
1.0	20 Mar 19	Initial Release	L. Steven
2.0	08 Mar 21	Procedure reviewed	L. Steven
3.0	27 Feb 23	Procedure reviewed and added to NTHSSA policy template	L. Steven
4.0	31 Mar 25	Procedure reviewed and updated to include CandiSelect chromogenic agar	L. Steven

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