

Name of university, Name of faculty: Trnava University
Faculty of Health Care and Social Work

INFORMATION SHEET OF THE SUBJECT

Code: LMbEE26		Name: Microbiology - Mycology	
Cover: Department of Theoretical Disciplines and Laboratory Investigation Methods			
Type of educational activity: Seminar, Practise		Number of credits: 2	Recommended semester: WT
Scope of educational activity (in hours): Weekly: - For term of study: ZS 12,12			Study grade: 1. PO
Method of educational activity:			
Recommended semester	Study programme		
2.year WT	Laboratory Medicine (E1-LVMvZ-23)		
Underlie subjects: LMbEE04 - Biology I., LMbEE11 - Biology II.			
Conditions for passing the course: Method of evaluation: Completion by taking an examination Continuous evaluation: none Final evaluation: - Preparation of protocols from each practise separately during the semester (max. 10% of evaluation) - Written test that corresponds to the topics of each practise (max. 10% of evaluation) - After successful completion of the written test of the practise, the student is admitted to the final examination in the form of a written test (max. 80% of evaluation). The written final examination includes the issues that were lectured in the seminar for the given subject. Evaluation: A: 100 – 95%; B: 94 – 89%; C: 88 – 83%; D: 82 – 77%; E: 76 – 71%; FX: 70% and less Finished: exam - written test			
Learning outcomes: VV1 Upon completion of the course, the student will have theoretical knowledge and practical skills in the cultivation, microscopy and characterization of medically important fungi involved in the development of mycotic diseases VV2 The student will know information about basic diagnostic tests used in clinical practice to identify medically important fungi, for example diagnostic tests to distinguish <i>Candida albicans</i> from "non- <i>C. albicans</i> <i>Candida</i> " species VV3 The student will be able to identify existing methods of susceptibility testing for selected antifungal agents VV4 The student will be able to interpret the results of susceptibility or resistance of <i>Candida</i> VV5 The student will have knowledge of experiments on adherence and biofilm formation of pathogenic yeasts under in vitro conditions VV6 The student will be able to identify pathogenic yeasts from an unknown sample VV7 The student will be able to implement the acquired knowledge and practical skills in the following years in courses focused on microbiology and clinical microbiology			
Schedule of subject: Seminars: 1) Introduction to Mycology 2) History of the study of microscopic fungi and their distribution 3) Isolation, transport, storage and safety principles when working with microscopic fungi. Fundamentals of systematics 4) Reproduction of lower and higher microscopic fungi 5) Morphology and formation of fructifying organs of yeasts 6) Morphology and formation of fructifying organs of microscopic filamentous fungi 7) Dermatophytes. Fundamentals of medical mycology 8) Virulence and pathogenicity factors of <i>Candida</i> 9) Distribution of antifungal agents and mechanisms of resistance 10) Diagnostic methods used in the identification and characterization of microscopic filamentous fungi and pathogenic yeasts 11) Diagnostic methods used in the identification and characterisation of microscopic filamentous fungi and pathogenic yeasts 12) Diagnostic methods used in the identification and characterisation of microscopic filamentous fungi and pathogenic yeasts Practise: 1) Introduction to Mycology exercises, general information, credit requirements, study materials. Introduction to safety principles in the biology laboratory. Principles of work organization in the laboratory. 2) Basic methods and equipment used in the cultivation of microscopic filamentous fungi and yeasts. Preparation of soils and inoculation of <i>Candida</i> on Sabouraud Dextrose agar and CHROMagar <i>Candida</i> . 3) Evaluation of growth on individual soils. 4) Differentiation of <i>Candida albicans</i> from "non- <i>C. albicans</i> <i>Candida</i> " species using Germ Tube test and using biochemical tests API 20 C aux system, reading of results and their correct interpretation - I. 5) Differentiation of <i>Candida albicans</i> from "non- <i>C. albicans</i> <i>Candida</i> " species using Germ Tube test and using API 20 C aux system biochemical tests, reading of results and their correct interpretation. 6) Differentiation of <i>Candida albicans</i> from "non- <i>C. albicans</i> <i>Candida</i> " species using Germ Tube test and using API 20 C aux system biochemical tests, reading of results and their correct interpretation. 7) Determination of susceptibility/resistance of <i>Candida</i> to antifungal agents - azole (fluconazole) and echinocandin (caspofungin) by microdilution method, preparation of 96-well polystyrene plate, reading of results and their correct interpretation - I. 8) Determination of susceptibility/resistance of <i>Candida</i> to antifungal agents - azole (fluconazole) and echinocandin (caspofungin) by microdilution method, preparation of 96-well polystyrene plate, reading of results and their correct interpretation.			

- 9) Determination of susceptibility/resistance of candida to antifungal agents - azole (fluconazole) and echinocandin (casprofungin) by microdilution method, preparation of 96-well polystyrene plate, reading of results and their correct interpretation - III.
- 10) Adherence ability and biofilm formation of candida on 96-well polystyrene plates, quantification using crystal violet spectrophotometrically, graphical evaluation of results - I.
- 11) Adherence ability and biofilm formation of candida on 96-well polystyrene plates, quantification using crystal violet spectrophotometrically, graphical evaluation of results. - II.
- 12) Adherence ability and biofilm formation of candida on 96-well polystyrene plates, quantification using crystal violet spectrophotometrically, graphical evaluation of results - III.

Recommended reading:

- 1) BUJDÁKOVÁ, H.: Základné prístupy v identifikácii mikroskopických húb. Univerzita Komenského v Bratislave, Prírodovedecká fakulta, 2017, ISBN 978-80-223-4378-7. /online: https://fns.uniba.sk/uploads/media/Zakladne_pristupy_v_identifikacii_mikroskopickych_hub.pdf
- 2) JORGENSEN, J. H.- PFALLER M. A.-CARROLL K. C. et al. Manual of Clinical Microbiology. 11th Edition, ASM Press, Washington DC, USA, 2015, ISBN 9781119741411. / Moodle
- 3) KUCHARÍKOVÁ, S.-BUJDÁKOVÁ, H.: Teoretický úvod a protokoly z lekárskej mykológie. Univerzita Komenského v Bratislave, Prírodovedecká fakulta, 2021 / online: https://dspace.uniba.sk/xmlui/bitstream/handle/123456789/28/PRIF_SKHB_lek_mykologia.pdf?sequence=3&isAllowed=y

Language requirements: Slovak

Notes:

The daily combined method consists of: seminars /on-line, discussion group in MS Teams/; practise /attend/
Self-study is supported by e-learning
100% participation is required.

Prerequisites:

Biology I. (LMbD04)

Biology II. (LMbD11)

Course evaluation:

Assessed students in total: 3

A	B	C	D	E	FX
0%	33%	33%	33%	0%	0%

Lecturers:

doc. RNDr. Soňa Kucharíková, PhD., examiner, instructor, seminary supervisor

Date of last change: 01.09.2026

Approved by: doc. Ing. Stanislava Blažíčková, PhD., MPH, univ.prof.