



FACULTY OF PHARMACY MEDICAL UNIVERSITY-SOFIA

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DEAN:

(Prof. Alexander Zlatkov, DSc)

Department of Pharmacology, Pharmacotherapy and Toxicology

SYLLABUS

ELECTIVE „DRUG METABOLISM AND DRUG TOXICITY“

Semester: VII

INCLUDED IN "PHARMACY" EDUCATIONAL CURRICULUM

EDUCATIONAL DEGREE: "MASTER"

CREDITS (ECTS) = 5

Horarium:

Lectures: 30 hours

Practicals: 30 hours

ANNOTATION

An important branch of toxicology is "Drug toxicology". It studies in detail the mechanisms of damage by various xenobiotics (including drugs), as well as the mechanisms of protection at the sub-cellular and cellular level, and of the whole organism. In the Drug Metabolism and Drug Toxicity course, pharmacists will learn in more detail about the role of drug biotransformation and mechanisms of detoxification and bioactivation. Methods for obtaining sub-cellular fractions, cell culturing and modern methods for isolating enzymes from the Cytochrome P450 system and evaluating the effects of biologically active substances on their activity will also be covered. The role of genetic polymorphism and the influence of various endogenous and exogenous factors are also discussed. Students are also introduced to some of the methods for assessing the potential genotoxicity of some xenobiotics.

Current control and assessment system: seminars and final examination at the end of the academic year (written and oral).

English language training

SYLLABUS

1. Introduction to drug metabolism: nature and significance. Biotransformation processes.
2. Drug-metabolizing enzyme systems.
3. Molecular mechanisms of drug metabolism. Cytochrome P-450.
4. Extrahepatic drug metabolism.
5. Drug toxicity - free radicals, oxidative stress.
6. Molecular mechanisms of toxicity.
7. Detoxification and defense mechanisms.
8. Drug-induced organ and system damage.
9. Processes of induction and inhibition. Drug interactions at the metabolic level.
10. Endogenous factors affecting drug metabolism.
11. Exogenous factors affecting drug metabolism.
12. Drug metabolism - genetic polymorphism and toxicity: clinical aspects.
13. Pathological conditions and drug metabolism.
14. Species, sex and age differences in drug metabolism.
15. Drug metabolism - methods of assessment in man.

Date: 30.09.2021

Program author:

Prof. Virginia Tzankova, PhD

Head of the Department:

Prof. Georgi Momekov, DSc