Level: Bachelor

Course title: Analysis of Sport Supplements

Status: Elective

ECTS: 6

Requirements: None

Learning objectives

The goal of the course is to provide a balanced treatment of the theoretical and practical aspects of analytical chemistry in analysis of sport supplements, quality control during the production and analysis of their active substances in human fluids.

Learning outcomes

After successful completion of the course, a student is able to:

- List all important active substances from different classes of the food and sport supplements.
- Solve problems related to analysis of active substances.
- Adequately operate instruments for measuring physical and chemical characteristic of active substances.

Syllabus

Theoretical instructions

The definition and classification of sports supplements. The use and abuse of sports supplements. Energy and isotonic drinks. Supplements for the increase and for the reduction of body weight. Stimulants and beta-blockers. Analgesics and salicylates. The criteria for the illicit supplements. Anabolic steroids. Diuretics. Anti-doping tests (sampling, analysis, masking reagents). Implementation of classical and modern analytical methods (spectroscopy, chromatography, NMR, ELISA) in the detection and determination of sports supplements and their metabolites. Blood and genetic doping.

Practical instructions

Determination of caffeine in energy drinks by HPLC technique. Determination of the purity of sports agent (creatine monohydrate). Spectrophotometric determination of creatinine in the blood. Potentiometric and spectrophotometric determination of ephedrine. Determination of anabolic steroids in urine by GC-MS technique. Chromatographic separation of B vitamins.

Weekly teaching load				Other: /
Lectures: 2	Exercises: 3	Other forms of teaching: /	Student research: /	