

Departamentul de Chimie Analitică și Chimie Fizică

Conferențiar universitar, poziția 13 în statul de funcții al Departamentului de Chimie Analitică și Chimie Fizică

Discipline din planul de învățământ

Tehnici avansate de caracterizare analitică a medicamentelor și produselor cosmetice (curs)

Biochimie analitică (curs)

Analiză instrumentală: metode spectrometrice (lucrări practice)

Analiză instrumentală: metode electrochimice în biochimie (lucrări practice)

Analiză instrumentală: metode electrochimice (lucrări practice)

Bioanaliză (lucrări practice)

Tematică

1. Metode farmacotehnice de caracterizare a medicamentului (testul de dizolvare, testul de dezintegrare, testul de friabilitate, testul de rezistență la rupere, testul de curgere, metode de măsurare a granulometriei).
2. Tehnici spectrometrice (NIR și Raman) în controlul proceselor tehnologice din industria medicamentului (Process Analytical Tehnology).
3. Metode gaz- și lichid-cromatografice utilizate în controlul medicamentelor și produselor cosmetice.
4. Aplicații ale tehnicilor spectrometrice (spectrometrie de absorbție moleculară în UV-Viz, spectrometrie de fluorescență moleculară, dicroism circular) în studiul aminoacizilor, proteinelor, acizilor nucleici, carbohidraților, lipidelor și a altor compuși de importanță biologică.
5. Metode electrochimice în studiul biomoleculilor. Celula electrochimică (solvenți, electrolit suport, tipuri de electrozi).
6. Validarea metodelor (bio)analitice. Caracteristici de performanță a metodelor (bio)analitice.

Bibliografie

1. V. David, A. Medvedovici, Metode de separare și analiză cromatografică (Ediția a III-a, revizuită). Editura Universității din București, 2018.

2. M. Bojita, L. Roman, R. Sandulescu, R. Oprean, Analiza si controlul medicamentelor, vol. 1. Bazele teoretice si practice, Ed. Intelcredo, 2003.
3. R.J. Smith, M.L. Webb (eds.), Analysis of Drug Impurities, Blackwell Publishing, 2007.
4. A. Müllertz, Y. Perrie, T. Rades (eds.), Analytical Techniques in the Pharmaceutical Sciences (Advances in Delivery Science and Technology), Springer, 2016.
5. S. Pedersen-Bjergaard, B. Gammelgaard, T.G. Halvorsen, Introduction to Pharmaceutical Analytical Chemistry, 2nd Edition, John Wiley & Sons, 2019.
6. S.H. Hansen, S. Pedersen-Bjergaard (eds.), Bioanalysis of Pharmaceuticals: Sample Preparation, Separation Techniques and Mass Spectrometry, John Wiley & Sons, 2015.
7. B. Kolb, L.S. Ettre, Static Headspace-Gas Chromatography: Theory and Practice, 2^d Edition, Wiley, 2006.
8. Y. Kazakevich, R. LoBrutto (eds.), HPLC for Pharmaceutical Scientists, John Wiley & Sons, 2007.
9. J.J. Dressman, J. Kramer (eds.), Pharmaceutical Dissolution Testing, 1st Edition, CRC Press, 2005.
10. C.D. Murthy, G. Sunkara, D. Young (eds.), Pharmaceutical Product Development. In Vitro-In Vivo Correlation, CRC Press, 2019.
11. N. Hrastelj, R.B. da Silva, Traceability, Validation and Measurement Uncertainty in Chemistry: Vol. 3. Practical Examples, Springer, 2019.
12. J. Ermer, P. Nethercote (eds.), Method Validation in Pharmaceutical Analysis: A Guide to Best Practice, Second, Completely Revised and Updated Edition, Wiley - VCH, 2015.
13. D.J. Holme, H. Peck, Analytical Biochemistry, 3rd Edition, Prentice Hall, 1998.
14. S.R. Mikkelsen, E. Cortón, Bioanalytical Chemistry, John Wiley & Sons, 2016.
15. R. Katoch, Analytical Techniques in Biochemistry and Molecular Biology, Springer, 2011.
16. J. Wang, Analytical Electrochemistry, Third Edition, John Wiley & Sons, 2006.
17. P. N. Bartlett (ed.), Bioelectrochemistry: Fundamentals, Experimental Techniques and Applications, John Wiley & Sons, 2008.
18. E. Palecek, F. Scheller, J. Wang (eds.), Electrochemistry of Nucleic Acids and Proteins. Towards Electrochemical Sensors for Genomics and Proteomics, Elsevier Science, 2005.

Se poate folosi orice altă sursă bibliografică reprezentativă pentru tematica cerută.

Decan,

Prof. dr. Andrei Valentin MEDVEDOVICI

Department of Analytical Chemistry and Physical Chemistry

Associate Profesor, position 13 from Department of Analytical Chemistry and Physical Chemistry

Academic disciplines in the curricula:

Advanced techniques for the analytical characterization of pharmaceuticals and cosmetic products (course)

Analytical biochemistry (course)

Instrumental analysis: spectrometric methods (laboratory).

Instrumental analysis: electrochemical methods in biochemistry (laboratory)

Instrumental analysis: electrochemical methods (laboratory)

Bioanalysis (laboratory)

Topics:

1. Experimental methods for the characterization of pharmaceutical products (dissolution assay; disintegration test; friability test; rezistence test; flowing test; measurements of granulometry).
2. Spectrometric techniques (NIR and Raman) used in the control of technological processes in pharmaceutical industry (Process Analytical Tehnology).
3. Gas and Liquid-chromatographic techniques used in the control of pharmaceutical and cosmetic products.
4. Application of spectrometric techniques (UV-Vis absorption spectrometry; molecular fluorescence spectrometry; circular dichroism) for the study of aminoacids, proteins, nucleic acids, carbohydrates, lipids and other biological compounds.
5. Electrochemical methods for the study of biomolecules. Electrochemical cell (solvents, electrolytes, types of electrodes).
6. Validation of (bio)analytical methods. Performance crriteria for the (bio)analytical methods.

References:

1. V. David, A. Medvedovici, Metode de separare și analiză cromatografică (Ediția a III-a, revizuită). Editura Universității din București, 2018.
2. M. Bojita, L. Roman, R. Sandulescu, R. Oprean, Analiza și controlul medicamentelor, vol. 1. Bazele teoretice și practice, Ed. Intelcredo, 2003.
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Other bibliographical sources related to the above topics can also be used.

Dean,
Prof. Dr. Andrei Valentin MEDVEDOVICI