

DEPARTMENT OF ANALYTICAL CHEMISTRY

Head of Department:
Assoc.Prof. Jozef Lehotay, PhD., DSc.

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Full Professors:
Dušan Bustin, PhD., DSc.; Ján Krupčík, PhD., DSc.; Dr.Ján Mocák, PhD., DSc.

Associate Professors:
Ernest Beinrohr, PhD.; Eva Brandšteterová, PhD.; Miroslav Čakrt, PhD.; Ján Labuda, PhD.; Jozef Lehotay, PhD., DSc.; Drahomír Oktavec, PhD.; Miroslav Rievaj, PhD.; Jozef Polonský, PhD.; Viktor Vrábel, PhD.

Assistant Professors:
Eva Benická, PhD.; Tatiana Buzinkaiová, PhD.; Andrea Hercegová; Tibor Hevesi, PhD. (7 months); Svetlana Hrouzková, PhD.; Elena Korgová, PhD.; Jarmila Laštincová; Pavol Májek, PhD. (from 1.3.1998); Alena Manová, PhD. (from 1.10.1998); Štefan Mesároš, PhD. (3 months); Pavol Tarapčík, PhD.; Mária Vaničková, PhD.

Reader:
RNDr. Magdaléna Valachovičová

Scientific workers:
Eva Benická, PhD. (till 31.8.1998); Katarína Hroboňová, PhD.; Jana Sádecká, PhD.; Ivan Skačáni, PhD.; Bučková Miriam, Pavel Kubalec, Monika Medvedová, Peter Tomčík

Research workers:
Ján Dzurov

Research Fellows - PhD. Students
Roman Biely, Ľudmila Bovanová, Alica Čaniová, Adriana Ferancová, Ľubomír Jurica, Peter Korytár, Peter Oswald, Ivan Špánik

Technical staff :
Ladislav Bartalos, Danuša Bartaloso, Marta Benešová, Zuzana Bobáková, Elena Bruteničová, Zuzana Cifrová, Malvína Čakrtová, Blanka Chynoradská, Eva Lukačovičová, Magda Ondrejčikovičová

II. TEACHING AND RESEARCH LABORATORIES

Laboratory of capillary gas chromatography
Laboratory of high performance liquid chromatography
Laboratory of electroanalytical methods
Laboratory of molecular spectrometry
Clean laboratory for trace analysis with atomic spectrometry (AAS, OES-ICP)
Laboratory of organic elemental analysis
Laboratory of organic synthesis
Laboratory of fluorescence analysis
Laboratory of capillary isotachopheresis
Laboratory of electrochemical pre-concentration for atomic spectroscopy
Laboratory of chemometry
Laboratory of bioanalytical chemistry

III. TEACHING

4th Semester

Analytical Chemistry I. (2-2 h) Polonský Krupčík, Labuda, Vrábel,
Laboratory Practice AC I. (0-4 h)

5th Semester

Analytical Chemistry II. (2-2 h) Bustin, Čakrt, Lehotay, Polonský
Laboratory Practice AC II. (0-4 h)

6th Semester

Analytical Chemometrics (2-2 h) Mocák

7th Semester

Atomic Spectrometry (2-0 h) Beinrohr
Anal.Chem. of Complex Inorg. Mixtures (2-0 h) Oktavec
Anal.Chem. of Complex Organic and Biological Mixtures (2-0 h) Brandšteterová
Automation of Analytical Chemistry (2-0 h) Rievaj
Lab.Practice I. (0-10 h)
Lab.Practice for food spec. (0-4 h)
Biosensors (2-1 h) Labuda
Biolab. Practice (0-2 h)

8th Semester

Chosen Separation Methods	(2-2 h)	Matisová, Valigura
Electrochemistry and Electro-analytical Chemistry	(2-1 h)	Bustin
Analytical Separation Methods	(2-1 h)	Krupčík
Lab.Practice II	(0-6 h)	

9th Semester

Trace Analysis and Microanalysis Methods	(2-1 h)	Čakrt, Beinrohr
Environmental Analytical Chemistry	(2-0 h)	Buzinkaiová, Benická
Identification of Chemical Substances	(2-1 h)	Lehotay, Liptaj
Bioanalytical Chemistry	(2-1 h)	Labuda, Mocák
Lab.Practice V.	(0-10 h)	

10th Semester

Seminar to Diploma Work	(0-3 h)	
Laboratory of Diploma Work	(0-27 h)	

Selected Subjects

Identification of Analytical Methods	(1-2 h)	Lehotay, Liptaj
Nuclear Analytical Chemistry	(2-0 h)	Tarapčík
Chemistry of solid substances	(2-0 h)	Vrábel

8th Semester**Postgraduate study**

Theoretical and Methodical Basis of Chemical Research	(2-0 h)	Bustin, Krupčík
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IV. CURRENT RESEARCH PROJECTS**A. Research project: Sensors and procedures for analysis of components in environment, biological systems and technologically important materials. (Dušan Bustin)**

Results:

1. Novel types of carbon sorbents and silicone membranes were utilized for the isolation of toxic pollutants from air and water matrices and determined by HRGC and/or HRGC/MS methods. Mathematical models were used for the prediction of quantitation limits in HPLC and HRGC and retention data in temperature programmed HRGC. Mathematical and chromatographic models were used for the computer-assisted optimization of selectivity of two chiral capillary columns coupled in a series. The methods of theoretical chemistry were used for the calculation of optimum conformations of some optical active compounds. Correlation of both the optimum structures of separated compounds and stationary phases with retention data was used for the explanation of chiral recognition mechanisms in HPLC and HRGC. A novel method was derived for the calculation of energy characterizing enantioselective interactions at chiral recognition of enantiomers by any chiral selector.
2. A new method was developed for the electrochemical generation of selenium hydride for detection by atomic emission spectroscopy with microwave induced plasma as well as for atomic absorption spectroscopy. The hydrides were generated in an original flow-through cell with large-surface porous electrode. The method was used for analyses of water samples. Procedures were developed for the determination of some biologically relevant trace metals, such as As, Se, Hg, Cd, Pb, etc., by flow-through stripping coulometry. The conditions for their calibrationless determination were optimized.
3. Optimum parameters, concerning material (Pt, Au, Ir, Rh and carbon forms), shape, size and way of the mikroelektrode surface reproduction, were found for the trace analysis purposes in order to achieve the most favourable signal/noise ratio and signal selectivity in electrochemical stripping analysis. Platinum or carbon disc-shaped microelectrodes of the radius 1 - 25 μm have been found as the best.
4. New chemometric procedures, namely: (a) generalised way of analytical calibration, (b) calculation of regression parameters in case of significant random errors of the independent variable, (c) computer calculation of the combined standard uncertainty for complicated instrumental procedures, (d) classification of natural materials by multivariate data analysis, make possible to achieve quality assurance of the analytical measurements and good laboratory practice at the level of an accredited laboratory.
5. New way of calculation of the limits of detection and quantification has been derived by using the upper limit of the confidence band for analytical calibration function. Our approach, recommended by IUPAC, was recently augmented by several practical recipes of the both limits calculation, valid for different cases of the experimental calibration design.
6. The influence of γ -radiation on the structural changes of conducting polymers [poly(3-alkylthiophene)s] has been studied. The γ -radiation effect brings about some conformational changes of the long side-chain alkyls. In the doped system with FeCl_3 the polymer treated by γ -radiation has increased thermal stability, which depends on the radiation dose. The γ -radiation effect decreases the rate of the diffusion of gases (O_2 , SO_2 , NO_2) and water vapour into the polymer system. It has been found anomaly in magnetic properties of the poly(3-alkylthiophene)s depending on the alkyl chain length. A new type of amphiphilic thiophene, oligo[n-alkyl-3-(3-thienyl)glutaric acid], was synthesized (with $n = 8, 12$ and 18). These molecules form a stable monolayer at the air/water interface. Successful Langmuir-Blodgett (LB) deposition was achieved by vertical dipping. The LB films of Y-type exhibit well-defined layered structures.

V. COOPERATION

A. Cooperation in Slovakia:

Slovak Metrological institute, Bratislava
Faculty of Pharmacy CU, Bratislava
Faculty of Medicine CU, Bratislava
Faculty of Natural Sciences, CU, Bratislava
National Institute of Oncology SR, Bratislava
Slovak Academy of Sciences, Bratislava
Food Research Institute, Bratislava
Institute of Veterinary Hygiene and Ecology, Trnava
Department of Analytical Chemistry, Comenius University Bratislava

B. International Cooperation :

Technical university Vienna, Getreimarkt 9, Vienna, Austria
Cooperation in the field of utilization of carbon sorbents in trace analysis
University of Ulm, Germany :
Development of methods for analysis of enantiomers in dual column gas and liquid chromatography
Monash University, Melbourne, Australia :
University of Mining and Metallurgy, Cracow, Poland
University of Ljubljana , Slovenja
University of Münster, Institute of Pharmaceutical Chemistry, Germany :
MC Gill University, Department of Oncology, Montreal, Canada:
Stereo selective separation of cancer drugs by HPLC
National Research Institute of Health Science, Tokyo, Japan
Department of Oncology, University of California, San Diego, U. S.
Institute of Pharmacy, University of Liege, Belgium
Department of Analytical Chemistry, Palacky University, Czech Republic
Department of Analytical Chemistry, University of Leipzig, Germany
Development chemical modified electrodes for detection in flow system
University of Dortmund, Germany :
Development of equipments for flow analysis
Sektion Analytik und Hochreinigung, Universität Ulm, Germany
Department of Organic Chemistry, Gent University, Gent, Belgium:
Chiral separation of optical active compounds by GC
Orleans University, Laboratory of Industrial Analytical Chemistry and Chemometry, Orleans, France:
Statistical evaluation of data obtained from gas chromatographic separations of multicomponent mixtures

C. Membership in Domestic Organisations and Societies

Slovak Chemical Society at Academy of Science, group of Analytical Chemistry	Prof. Ján Krupčík, PhD., DSc., chairman
Slovak Chemical Society, Chromatographic group	Assoc. Prof. Eva Brandšteterová, PhD., chairman
Slovak Research Technical Society	Assoc. Prof. Eva Brandšteterová, PhD.
Slovak Society of Clinical Biochemistry	Prof. Ján Mocák, PhD., DSc.
KEGA at MESR	Assoc. Prof. Jozef Polonský, PhD.
Coordination Committee for Chemical Competition ZSA SS at MESR	Assoc. Prof. Jozef Polonský, PhD.

D. Membership in International Organisations and Societies

GDCH, Germany	Assoc. Prof. Ernest Beinrohr, PhD.
International Union Against Cancer, Switzerland	Assoc. Prof. Eva Brandšteterová, PhD.

E. Tempus Programme :

1. JEP-09101-95 New Curriculum in Chiral Chemistry, cooperation with Comenius University in Bratislava (contractor) and France (University in Strasbourg), Germany (Universities in Regensburg and Tubingen), Italy (Institute for chromatography in Roma), The Netherlands (Eindhoven University), Belgium (University of Liege).

F. International Scientific Programmes :

1. 15CT960804INCO COPERNICUS PROJECT ERBIC
Project title: Biosensors for direct monitoring of pollutants in field. Associated contractor: Assoc. Prof. Jan Labuda
Electrochemical biosensors based on double stranded calf thymus DNA modified glassy carbon (GCE) and carbon paste (CPE) electrodes as well as screen printed sensors were prepared and used for the detection of some groups of chemicals interacting with the biopolymer structure. The stability constants of the adducts with dsDNA and the values of binding site size (in base pairs) for metal complex species and other substances interacting with DNA were obtained. Seven commercially available compounds of the phenothiazine and azepine drugs as well as eight derivatives of acridine, catechin and quinazoline have been determined using DC and DP voltammetry after the preconcentration of analytes on the DNA biosensor. The method allows the determination within nM to μ M concentration range (in aqueous medium or 0.5 % DMSO) with the relative standard deviation of 4 to 9 %. The DNA biosensors can be considered as simple warning analytical systems for the detection of risk compounds and pollutants. A simple procedure for the evaluation of damage to dsDNA based on the application of DNA biosensors was also obtained. The effect of various chemical nucleases (e.g.

copper compounds producing reactive oxygen radicals) which cleave dsDNA has been examined for both the DNA in solution as well as that immobilized at the electrode surface. Time profiles for decomposition of DNA by the trace concentrations of chemical nucleases were obtained.

- British Council Funded Academic Link: Use of Chemometric Methods to Classify Natural Tree Exudate Gums. British coordinator: Prof. G.O. Phillips (Newtech Innovation Centre, Wrexham), Slovak coordinator: J. Mocak, Slovak University of Technology Bratislava, 1996 - 1998.

Project was funded during the period 1996-98. The main scientific goal of the Project was classification of various natural materials (Gum Arabic, non-starch polysaccharide fibers) by multivariate methods of the chemometric data analysis, using mainly Principal Component Analysis, Canonical Correlation Analysis, Cluster Analysis, etc. Project outputs were accepted by FAO/WHO Joint Expert Committee for Food Additives and are important for recognition of adulterants in food use.

- CEEPUS grant PL-24. Original Project PL-24 grant had been approved for the school year 1997/98, then it was prolonged for 1998/99.

The project concerns international student and teacher exchange among Central European universities. In the PL-24 Project the following universities have been engaged: University of Graz (Prof. K. Kalcher), University of Ljubljana (Prof. B. Pihlar), University of Pardubice (Prof. K. Vytras), University of Mining and Metallurgy, Cracow (Prof. A. Bobrowski - Project coordinator) and Slovak University of Technology (Prof. J. Mocak). The students as well as the teachers have been involved in the part of the undergraduate as well as graduate Chemistry Curriculum focussed on Analytical Chemistry.

- PHARE ETF/97/VET/0076 Project "Quality of chemical measurements and chemical metrology". Partners: Agricultural University Wageningen, The Netherlands, Jozef Stefan Institute, Ljubljana, Slovenia, Chemmea, Ltd., Bratislava and Slovak University of Technology, Bratislava, Slovak Republic. Coordinator at Slovak Univ. of Technol. - J. Mocak. 1998-99.

PHARE ETF/97/VET/0076 Project "Quality of chemical measurements and chemical metrology". The Project was granted by EU for the 1998-99 time period. The partners are: Agricultural University, Wageningen, The Netherlands (Prof. V. Houbá), Josef Stefan Institute, Ljubljana, Slovenia (Dr. Milena Horvat), Slovak University of Technology, Bratislava (Prof. J. Mocak), CHEMMEA, Ltd., Bratislava (Dr. D. Kordik) - as the leading partner, and Slovak Centre for Long-distance Education, Regional Centre in Bratislava (Prof. M. Huba). The main goal of the Project is elaboration of the international long distance study concerned on evaluation of results in chemical laboratories, interlaboratory tests, quality control, accreditation of chemical labs, certification and metrology. Textbooks, guides and tests are prepared in the standard as well as electronic form (multimedial CD COM) and information materials are being prepared on the Internet web site of CHEMMEA Ltd.

- Project NATO, Explosives - Contaminated Site Characterization, cooperation with Defence Research Establishment, Valcartier, Quebec, Canada.

- Volkswagen Foundation, Germany: (E. Beinrohr)

Ultra trace and speciation analysis of environmental samples in Slovakia by new analytical flow systems and instrumentation

Characterisation: Biologically relevant trace elements and their chemical forms in environmental samples from the Danube region in Slovakia will be determined by methods developed by researchers from Germany and Slovakia:

i) Ultratrace and speciation analysis of Se, Cr, Mn, Cu, Pb, Cd, Al, Hg in environmental samples.

ii) Development and evaluation of flow-through electrochemical cells for absolute trace analysis, trace element pre-concentration and speciation, electrochemical hydride generation, sample pre-treatment and reagent purification. Development of the corresponding instrumentation and computer software ensuring the routine use of the cells and flow systems. Theoretical description of the electrochemical processes in porous flow-through electrodes.

iii) On-line coupling of analytical devices to improve the detection power, selectivity, sample throughput, and to depress matrix interferences in GF AAS, MIP and SCP AES, ICP-MS and electrochemical measurements for analyses of environmental and industrial samples.

G. Visitors from Abroad

Prof. Daniel Armstrong

Department of Chemistry, Missouri-Rolla University, USA, August 1998

Prof. A. Bobrowski

University of Mining and Metallurgy, Cracow, Poland,

Prof. Bengt Danielson

Uni - Land Sweden, September 1998

G. Kasprzyk

student of the University of Mining and Metallurgy, Cracow, Poland,

Prof. Viliam Krivan, PhD.

University of Ulm, Germany, November 1998

A. Samarak

student of the University of Mining and Metallurgy, Cracow, Poland,

M. Strlic, MSc.

University of Ljubljana, Ljubljana, Slovenia,

Dr. Sonja Thiboutot, Dr. Guy Ampleman

Defence Research Establishment, Valcartier, Quebec, Canada, July 1998

Prof. Irving Wainer

Georgetown University, Washington D.C., USA, August 1998

H. Visits of Staff Members and Postgraduate Students in Foreign Institutions

Assoc. Prof. Ernest Beinrohr, PhD.

Zlaté Hory, Czech Republic, March 1998, (2 days), conference

Assoc. Prof. Ernest Beinrohr, PhD.

Poznan, Poland, April 1998, (2 days), conference

Assoc. Prof. Ernest Beinrohr, PhD.

Prag, Czech Republic, September 1998, (4 days), seminary

Assoc. Prof. Ernest Beinrohr, PhD.

Basel, Switzerland, September 1998, (6 days), conference

Assoc. Prof. Ernest Beinrohr, PhD.

Pardubice, Czech Republic, September 1998, (2 days), seminary

Assoc. Prof. Ernest Beinrohr, PhD.

Prag, Czech Republic, September 1998, (2 days), conference

Assoc. Prof. Ernest Beinrohr, PhD.

Hradec Kralove, Czech Republic, November 1998, (2 days)

Eva Benická, PhD.

Riva del Garda Italy, August 1998, (6 days), symposium

Ludmila Bovanová

Hungary, June 1998, (4 days), conference

Assoc. Prof. Eva Brandšteterová, PhD.

Düsseldorf, Germany, March 1998, (6 days)

Assoc. Prof. Eva Brandšteterová, PhD.

Vienna, Austria, August - September 1998, (4 days), conference

Assoc. Prof. Eva Brandšteterová, PhD.

Roma, Italy, August 1998, (6 days), symposium

Miriam Bučková
 Miriam Bučková
 Prof. Dušan Bustin, PhD., DSc.
 Ján Dzurov
 Ján Dzurov
 Andrea Hercegová
 Katarína Hroboňová, PhD.
 Katarína Hroboňová, PhD.
 Peter Korytár
 Prof. Ján Krupčík, PhD., DSc.
 Prof. Ján Krupčík, PhD., DSc.
 Prof. Ján Krupčík, PhD., DSc.
 Prof. Ján Krupčík, PhD., DSc.
 Pavol Kubalec
 Assoc. Prof. Ján Labuda, PhD.
 Assoc. Prof. Ján Labuda, PhD.
 Assoc. Prof. Ján Labuda, PhD.
 Assoc. Prof. Ján Labuda, PhD.
 Jarmila Laštincová
 Assoc. Prof. Jozef Lehotay, PhD., DSc.
 Assoc. Prof. Jozef Lehotay, PhD., DSc.
 Assoc. Prof. Jozef Lehotay, PhD., DSc.
 Assoc. Prof. Jozef Lehotay, PhD., DSc.
 Assoc. Prof. Eva Matisová, PhD., DSc.
 Assoc. Prof. Eva Matisová, PhD., DSc.
 Assoc. Prof. Eva Matisová, PhD., DSc.
 Monika Medveďová
 Prof. Ján Mocák, PhD., DSc.
 Prof. Ján Mocák, PhD., DSc.
 Prof. Ján Mocák, PhD., DSc.
 Prof. Ján Mocák, PhD., DSc.
 Prof. Ján Mocák, PhD., DSc.
 Prof. Ján Mocák, PhD., DSc.
 Assoc. Prof. Drahomír Oktavec, PhD.
 Jana Sedláková
 Mária Straková
 Ivan Špánik
 Ivan Špánik
 Sweden, August 1998, (9 days)
 Espana, November 1998, (5 days)
 Basel, Switzerland, September 1998, (5 days), conference
 Zlaté Hory, Czech Republic, March 1998, (2 days), conference
 Poznan, Poland, April 1998, (2 days), conference
 Canada, September - October 1998,
 Riva del Garda, Italy, May 1998, (4 days), conference
 Vienna, Austria, September 1998, (1 day), conference
 Vienna, Austria, December 1998, (1 day)
 Vienna, Austria, January 1998, (1 day)
 Riva del Garda Italy, May 1998, (6 days), symposium
 Vienna, Austria, August - September 1998, (4 days), conference
 Bled, Slovenia, October 1998, (5 days)
 Roma, Italy, August 1998, (6 days), symposium
 Portugal, April 1998, (11 days)
 Sweden, August 1998, (9 days)
 Budapest, Hungary, October 1998, (4 days)
 Espana, November 1998, (5 days)
 Prag, Czech Republic, June 1998, (5 days), conference
 Riva del Garda, May, August 1998, (6 days), symposium
 Vienna, Austria, August - September 1998, (4 days), conference
 Roma, Italy, September 1998, (6 days), symposium
 Montreal, Quebec, Canada, October - November 1998, (12 days)
 Riva del Garda, Italy, May 1998, (6 days), symposium
 Kom.- Lhotka, Czech Republic, November 1998, (4 days), conference
 Vienna, Austria, December 1998, (1 day)
 Vienna, Austria, December 1998, (1 day)
 Cracow, Poland, February 1998, (11 days),
 Prag, Czech Republic, (1 day), conference
 Ljubljana, Slovenia, June - July 1998, (11 days)
 Pardubice, Czech Republic, October 1998, (10 days)
 The Neederland, November 1998, (5 days)
 Pardubice, Czech Republic, November 1998, (4 days)
 Roma Italy, September 1998, (6 days), symposium
 Roma, Italy, August 1998, (6 days), symposium
 Roma, Italy, August 1998, (6 days), symposium
 Vienna, Austria, August - September 1998, (4 days), conference
 Riva del Garda Italy, May 1998, (6 days), symposium

VI. THESES AND DISSERTATIONS

A. Graduate Theses (MS Degree) for state examinations after five years of study in Analytical Chemistry (Supervisors are written in brackets)

Bartošová Martina: Capillary columns for gas chromatography with stationary phases based on cyclodextrin derivatives (E. Benická)
 Bolf Andrej: Electrophoretic study of choosen antirheumatic drugs (J. Polonský)
 Bóriková-Čapláková Henrieta: Application of voltammetric microelectrodes in trace analysis (M. Rievaj)
 Buchtová Gabriela: Electrochemical Detection of Amino Acids. (E. Korgová)
 Buzgová Monika: Isotachophoretic study of hydroxycarboxylic acids (J. Sádecká)
 Jančíková Petra: Flow - trough coulometric determination of Bi (E. Beinrohr)
 Kopas Z: Testing of effectivity and analytical use of the algorithms of numerical differentiation and integration (J. Mocák)
 Kušnírová Miriam: Separation of some enantiomers by HPLC (J. Lehotay)
 Makuka Ján: Luminiscence analysis in micellar media (M. Čakrt)
 Masná Martina: Electrochemical Indicators of DNA (J. Labuda)
 Oswald Peter: Evaluation of enantioselective interactions at direct capillary gas chromatographic separations (J. Krupčík)
 Pecušová Daniela: Chemiluminiscence analysis in the presence of fluorogenes (M. Čakrt)
 Rusnáková Jana: Molecural structure of Cu(N,N,N',N'-tetramethylethylethylen diamine. (V. Vrábel)
 Svitková Zuzana: Trace analysis of selected organic compounds by HRGC with the stress on the preconcentration in the sample pretreatment step (E. Matisová)
 Tomaščikova Andrea: The determination of some antiarrhythmic drugs by capillary isotachopheresis (T. Buzinkaiová)
 Wickleinová Andrea : Analytical Application of DNA Modified Electrode (M. Vaníčková)
 Zaťková Ditta: Study of DNA as an Electrode Modifier (J. Labuda)
 Závodská Andrea: High Speed HRGC and its utilization in trace analysis (Eva Matisová)
 Zsigmondová Zuzana: HPLC determination of morphine and codeine in oncological samples (E. Brandšteterová)

A. Graduate Theses (BS Degree) for state examinations after three years of study in Analytical Chemistry (Supervisors are written in brackets)

Árendáriková Stanislava:	Speciation of mercury in waters (E. Beinrohr)
Bindzárová Ivana:	The additives used in fat industry (T. Buzinkaiová)
Dungelová Jana:	Possibilities of HPLC using for chiral separation. (J. Lehotay)
Figura Andrej:	Structure and properties of 2-furylethylene derivatives. (V. Vrábel)
Fuknová Mária:	Determination of DNA by Electrochemical Methods (J. Labuda)
Javorová Silvia:	Monitoring propafenone and its metabolite using direct sample injection (E. Brandšteterová)
Kapečková Anna:	Combination of preconcentration techniques and capillary gas chromatography (Eva Matisová)
Kotianová Petra:	Trace analysis of volatile and semivolatile compounds with the utilization of extraction techniques in combination with HRGC (E. Matisová)
Malychová Zuzana:	Determination of Drugs using DNA Modified Electrode (M. Vaníčková)
Mico Ondrej:	Cooperation with pharmaceutical research institute, Warsaw (J. Polonský)
Nyúlová Katarína:	Using AES ICP for determination of Se and Te in ash. (D. Oktavec)
Orošová Katarína:	Isotachophoretic determination of drugs in biological fluids (J. Sádecká)
Palkovičová Timea:	Preconcentration of trace elements by making use of a flow - trough electrochemical cell coupled to as (A. Manová)
Podhradská Ivana:	HPLC application in biological sample analysis, (E. Brandšteterová)
Rosincová Danka:	The determination of Amino Acids by Electrochemical Methods (E. Korgová)
Sirková Žaneta:	Application of microelectrodes in analytical determinations (M. Rievaj)
Vývleková Zuzana:	Application of microelectrodes in electroanalytical chemistry (M. Rievaj)
Zajíčková Zuzana:	Gas chromatographic separation of optically active medical drugs (J. Krupčík)

B. Dissertations (PhD.)

Marková Mária:	Polymer membrane for separation of volatile using of organic compounds from water matrixe.
Tomčík Peter:	Using of integrated system of microelectrodes in analytical chemistry.

VII. PUBLICATIONS

A. Journals (* registered in Current Contents)

- [1]* Beinrohr E., Dzurov J., Annus J., J.A.C. Broekaert: Flow-through stripping chrono-potentiometry for the monitoring of mercury in waste waters. *Fresenius J. Anal. Chem.* 362, 201-204 (1998), (1,0)
- [2] Beinrohr E., Jurica L., Manová A., Dzurov J.: Nové metódy stanovenia ťažkých kovov v biologických tekutinách, *Laboratórna diagnostika*, 2/98, III, 105-106, (1,0)
- [3] Beinrohr E.: Atómová absorpčná spektrometria v.klinickej a biochemickej analýze, *Laboratórna diagnostika*, 2/98, ročník III, 106-107, (1,0)
- [4]* Benická E., Takáčová D., Krupčík J., Skačáni I., Onuska F., Terry K.: Gas Chromatographic Separation of PCB Atropisomers on Cyclodextrin Stationary Phases, *Chirality* 10 (1998) 540-547, (1,0)
- [5]* Bovanová L., Brandšteterová E., Baxa S.: HPLC determination of stevioside in plant material and food samples. *Z. Lebensm. Unters. Forsch.* 207 (5) (1998) 352-355, (1,0)
- [6] Božek P., Beinrohr E., Dzurov J.: Stanovenie olova v biologických materiáloch metódou rozpúšťacej chronopotenciometrie, *Laboratórna diagnostika*, 2/98, ročník III, 122-123, (1,0)
- [7]* Čelková H., Čižmárik J., Mlynárová R., Hroboňová K., Lehotay J.: Relationships between lipophilicity of some 1,4-piperazine derivatives of aryloxyaminopropanols and their b-adre-nolytic activity. *Acta Pol. Pharm.* 55, 6, 449 - 452 (1998), (1,0)
- [8]* Fargašová A. , Beinrohr E.: Metal-metal interactions in accumulation of V, Ni, Mo, Mn and Cu in under- and above-ground parts of *Sinapis Alba*, *Chemosphere* 36, 1305-1317 (1998), (0,2)
- [9] Hatrik Š., Lehotay J., Oktavec D.: Study of Relationships Between HPLC Data and Some Parameters Used for Evaluation of Oil Quality by Neural Network. *Petroleum and Coal*, 40, 2, 112-114 (1998), (1,0)
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