

# University of Novi Sad Yugoslavia

Honour and Advisory Committee:

Professor Svetolik Avramov,  
Rector of the University of Novi Sad

Academician Professor Olga Hadzic,  
President of Novi Sad University

Professor Jagoš Zelenović,  
Federal Minister of Development

Professor Branislav Ivković,  
Minister of Science and Technology

Academician Professor Gyula Tóth,  
Hungarian Academy - Szeged Branch

Academician Toma Dardas,  
Romanian Academy - Timisoara Branch

Professor Zoran Cukic,  
Asst. Minister of Development, Science and Environment

Dr. Zvezdana Spillmann,

President of the Faculty of Agriculture, University of Novi Sad

Professor Jovanka Popović,

Dean, Faculty of Technology, University of Novi Sad

Professor Pavle Bulović,

Dean, Faculty of Medicine, University of Novi Sad

Professor Doris Dehane,

Dean, Faculty of Agriculture, University of Novi Sad

Professor Dusan Gvozdenović,

Dean, Faculty of Agriculture, University of Novi Sad

Professor Jovanka Popović,

Dean, Faculty of Technology, University of Novi Sad

Professor Pavle Bulović,

Dean, Faculty of Medicine, University of Novi Sad

Professor Doris Dehane,

Dean, Faculty of Agriculture, University of Novi Sad



## **3<sup>rd</sup> International Symposium Interdisciplinary Regional Research (Hungary, Romania, Yugoslavia)**

### **Proceedings**

### **Part I**

**Novi Sad, FR Yugoslavia**

**24-25 September 1998**

**Publisher**

University of Novi Sad

**Editor in chief**

Professor Svetolik Avramov,  
Rector of the University of Novi Sad

300 copies

**Printed by**

STYLOS – Novi Sad

*Organization of the 3<sup>rd</sup> Symposium of Interdisciplinary Regional Researches, publishing publication of abstracts and proceeding was helped by Federal Ministry for Development, Science and Environment and Republic Ministry of Science and Technology.*

CIP Katalogizacija u publikaciji  
Biblioteka Matice srpske, Novi Sad

001.891 (498 + 439 + 497.1) (082)

INTERNATIONAL Symposium Interdisciplinary Regional Research (3 ; 1998 ; Novi Sad)

Proceedings. / 3<sup>rd</sup> International Symposium Interdisciplinary Regional Research Novi Sad, FR Yugoslavia, 24-25 September, 1998 ; editor in chief Svetolik Avramov. – Novi Sad : University, 1998 (Novi Sad: Stylos). – 966 str. : ilustr. ; 24 cm

Tiraž 300. – Bibliografija uz svaki rad.

a) Naučno-istraživački rad – Mađarska – Rumunija – Jugoslavija - Zbornici

***Honour and Advisory Committee:***

Professor Svetolik Avramov,  
*Rector of the University of Novi Sad*

Academitian Professor Olga Hadžić,  
*President of Novi Sad University Board*

Professor Jagoš Zelenović,  
*Federal Minister of Development, Science and Environment*

Professor Branislav Ivković,  
*Minister of Science and Technology of the Republic of Serbia*

Academitian Professor Gyula Telegdy,  
*Hungarian Academy - Szeged Branch*

Academitian Torna Dordea, Romanian  
*Academy - Timisoara Branch*

Professor Zoran Čukić,  
*Ass. Minister of Development, Science and Environment*

Dr. Živorad Smiljanić,  
*President of the Assembly of Voivodina Province*

Boško Perošević,  
*M.Sc. President of the Executive Council of Voivodina Province*

Professor Stojan Savić,  
*Vice-Rector of the University of Novi Sad*

Professor Ištvan Bikit,  
*Dean, Faculty of Science and Mathematics, University of Novi Sad*

Professor Ilija Čosić,  
*Dean of the Faculty of Engineering Sciences*

Professor Dušan Gvozdrenović,  
*Dean, Faculty of Agriculture, University of Novi Sad*

Professor Jovanka Popov-Raljić,  
*Dean, Faculty of Technology, University of Novi Sad*

Professor Pavle Budakov,  
*Dean, Faculty of Medicine, University of Novi Sad*

Professor Dorin Dehelean,  
*President of MRA from the West Zone of Romania*

Professor Nikola Marjanović,  
*Faculty of Technology, University of Novi Sad*

Professor Milan Matavulj,  
*Faculty of Science and Mathematics, University of Novi Sad*

***Organizing Committee***

Professor Svetolik Avramov

Professor Stojan Savić

Professor Nikola Marjanović

Professor Milan Matavulj

Professor Jonjaua Ranogajec

Doc. Gordana Ušćebrka

Professor Janko Hodolić

***Editor Board***

Professor Stojan Savić

Professor Nikola Marjanović

Professor Milan Matavulj

Professor Jonjaua Ranogajec

Doc. Gordana Ušćebrka

Professor Janko Hodolić

CONTENTS

SECTION

*Progress and Perspectives in  
Engineering Sciences and Informatics*

<b>Editor Board</b>	
<i>Professor Stojan Savić</i>	
<i>Professor Nikola Marjanović</i>	
<i>Professor Milan Matavulj</i>	
<i>Professor Jonjaua Ranogajec</i>	
<i>Doc. Gordana Ušćebrka</i>	
<i>Professor Janko Hodolič</i>	
<i>Progress and Perspectives of Engineering in 21 Century</i>	3
<i>Knowledge Based Knowledge Acquisition for Industrial Diagnostics</i>	7
<i>Intelligent Control of Manufacturing Processes</i>	9
<i>Method</i>	13
<i>Inductive Learning Based Framework for Diagnostic System Building</i>	17
<i>Knowledge Based Knowledge Acquisition for Industrial Diagnostics</i>	21
<i>Study of Self-Excited Vibrations in Metal Cutting</i>	25
<i>Composite Simulation of Horizontal Cylindrical Riddle</i>	29
<i>Acoustic Effect for DIPDC - Case Severin</i>	33
<i>Ric Comparison of Classical and Fuzzy Methods for the Treatment of Experimental Data</i>	37
<i>Development of Computer Applications for Structural Design</i>	41
<i>Applying the Distributed Processing Principles in Case of a Hospital Information System</i>	43
<i>Automated Systems Knowledge Base for Definition of Large Number of Product Variants and their Price</i>	49
<i>Development of Manufacturing Expertise (MC) Expertise Tools and the Data Management</i>	53
<i>The Use of Fracture Mechanics for Optimalised Machine Design</i>	57
<i>Manufacturing Expertise of MC Machine Tools and CADs - case of the 2D and 3D modelling</i>	61
<i>CAE Simulation of the Properties of Biodegradable Composites and their Properties</i>	69
<i>Simulation of the Properties of Biodegradable Composites and their Properties</i>	73
<i>Computer Aided Design of a High-Speed and Computer Integrated Manufacturing</i>	77

CONTENTS

SECTION

*Progress and Perspectives in  
Engineering Sciences and Informatics*

<b>Kakaš D., Škorić B, Mažibrada LJ.</b> Plasma Technology – The Great Possibilities for Developpe of Engineering in 21 Century.....	3
<b>Adžić, N.</b> Spectral Approximation of Nonlinear Convection – Difusion Problems.....	7
<b>Uzelac, Z.</b> Uniformly Accurate Spline Difference Methods for Convection – Diffusion Problems .....	9
<b>Antonić, Ž., Torović, T., Nikolić, N.</b> On An Application of the Hamilton-Jacobi Method.....	13
<b>Bajović, V., Bojković, G</b> Inductive Learning Based Framework for Diagnostic System Building.....	17
<b>Bojković, G., Bajović, V.</b> Knowledge Based Knowledge Acquisition for Industrial Diagnostics.....	21
<b>Kovačić, I.</b> Study of Self-Excited Vibrations in Metal Cutting.....	25
<b>Brindeu, L., Hegedús, A., Bíró, I., Deák, L.</b> Computer Simulation of Horizontal Cylindrical Riddle .....	29
<b>Praisach, V.I.</b> Informatic Project for DJPDC - Caraş Severin.....	33
<b>Grbić, T., Nedović, Lj., Ralević, N. M.</b> The Comparison of Classical and Fuzzy Methods for the Treatment of Experimental Data .....	37
<b>Lađinović, Đ., Brujić, Z., Kovačević, D.</b> Perspectives in Development of Computer Applications for Structural Design .....	41
<b>Šomodi, Š., Nedeljković, D.</b> Applying the Distributed Processing Principles in Case of a Hospital Information System.....	45
<b>Ćosić, I., Anišić, Z., Maksimović, A.</b> Assembly Systems Simulation Under the Conditions of Large Number of Product Variants and Small Batch Sizes.....	49
<b>Gatalo, R., Hodolić, J., Rekecki, J., Lužanin, O., Antić, A.</b> Development of Numerically Controlled (NC) Machine Tools and Flexible Manufacturing Structures (FMs) as Prerequisite for Computer Integrated Manufacturing.....	53
<b>Gerić, K., Glavardanov, I.</b> The Use of Fracture Mechanics for Determination of Service Safety .....	59
<b>Hodolić, J., Gatalo, R., Zeljković, Ž.</b> Automated Programming of NC Machine Tools and AFMS - state of the art and development tendencies.....	63
<b>Kovačević, Đ., Brujić, Z., Lađinović, Đ.</b> CAA Software - concept and perspectives of development, distribution, education and application .....	69
<b>Krsmanović, C., Radović, B., Govedarica, M., Baloš, D.</b> Industrial Engineering and Informatics Today - Does There Boundary Exist? .....	73
<b>Navalušić, S., Gatalo, R., Krsmanović, C., Hodolić, J., Milojević, Z.</b> Computer Aided Product Design as a Segment of the Computer Integrated Manufacturing.....	77

<b>Novaković, D.</b> Graphics-Based Software Solution for Gear Trains Design .....	81
<b>Plančak, M., Vilotić, D.</b> Some Aspects of the Development Trends in Metal Forming .....	85
<b>Marganović, D., Hodolič, J., Jeličić, Z.</b> Modelling and Evaluation of Various Control Algorithms for NC-Feed Drive Systems.....	89
<b>Vujičić, V., Milovančev, S., Župunski, I., Pejić, D.</b> Proposal of a New Measuring Technology.....	95
<b>Majstorović, V., Čosić, I., Hodolič, J., Čajko, G.</b> TQM at University Education .....	99
<b>Juhas, L., Lozanovski, T., Vujanić, A., Nađ, L., Borovac, B., Adamović, N.</b> Platform for Micro-Positioning with Piezo Actuators .....	103
<b>Ianici, S.</b> Analysis of the Stress Status Within the Short Flexible Toothed Wheel of a D.H.T. (Double Harmonic Transmission) by Using F.E.M. (Finite Element Method).....	107
<b>Truşculescu, M., Pascu, R., Liță, M.</b> Structural Transformations and Induced Tension by Simulation of Thermal Cycles at Welding of X20Cr130 Steel .....	111
<b>Todić, V., Sovilj, B., Milošević, M.</b> Automation of Design and Optimization of Technological Processes and Cutting Tools by Application of Modern Programme Tools.....	115
<b>Zeljковиć, M., Borojev, Lj., Gatalo, R., Milisavljević, B., Bajkin, J.</b> Automated Modeling and Design of Machine Tools and Their Vital Components With Experimental Identification of Their Behaviour.....	119
<b>Ruja, I., Szabo, S.</b> Equipment Driving and Data Acquisition Using Computers.....	125
<b>Šidanin, L., Kovač, P., Fisl, J., Novović, M.</b> Microscopy Study of Chip Formation Processes .....	133
<b>Živanov, Lj., Aleksić, O., Jenei, S., Desnica, V.</b> Calculation of Optimal Parameters of Thick Film Solenoid-Bar Type Inductor .....	137
<b>Anton, C., Muntean, M., Lehadus, T., Stefan, A., Nuta, I.I., Burlan, F.,D.</b> Microelectronic Processes Used for the Manufacture Planar Metal-Ceramic Micropackages.....	141
<b>Gillich, N.</b> Deformation of Wave Propagation on Transient Network Analyser .....	145
<b>Ćirić, R.,M., Popović, D., S.</b> Distribution Load Estimation Using a Fuzzy Set Approach .....	149
<b>Popp, C., Gillich, N.</b> Synthesis Method of the Digital Filters Using the Bilinear Transform.....	153
<b>Samoilescu, G.</b> The Electric Field Calculus for a Naval Ship .....	157
<b>Bekut, D., Dujić, J., Švenda, G.</b> Improvement of Distribution Network Thermal Protection Quality.....	163
<b>Nimrihter, M., Đapić, P.</b> Short Time Electrical Load Forecasting in Distribution Electrical Networks.....	167
<b>Nimrihter, M., Đapić, P.</b> Distribution Networks Analysis by Application of Fuzzy Mathematics.....	171
<b>Voia, I.</b> Two Microhydrounits for Electric Power Supply of Some Isolated Users .....	175
<b>Trivunić, M., R.</b> PRIMATES - Expert System for the Optimization of Prefabricated Concrete Hall Element Assembly.....	179

<b>Veselinović, M., Gladović, P.</b> Modal Shift as the Measure of Traffic Accessibility and Suitability of the Location Choice.....	183
<b>Živanov, Lj., Jenei, S., Stojanović, G., Aleksić, O.</b> Analysis and Simulation of Monolithic Spiral Inductors on Silicon Substrate.....	187
<b>Gladović, P., Veselinović, M.</b> Scientific Basis for Defining Current Financial Business Policy of the Public Transport in Novi Sad.....	191
<b>Milanov, M., Milutinović, M., Spasić, D.</b> One Problem of Linear Optimization for Vojvodina Region.....	195
<b>Jurca, T., Moroz, S.</b> Practical Contribution to a More Efficient Working of Coal Reserves in The Jiu Valley. The Mining Method by Undercutting With Complex Mechanization.....	199
<b>Potoceanu, T. M., Rosu, M.</b> Strategies for Developing the Western Area Under the Concept of Sustainable Development with Particulars Concerning Caraş-Severin County.....	203
<b>Negoitescu A.</b> Considerations Concerning the Importance of the Exhausted Heat Recovered from the Thermic Engines.....	207

SECTION

*Progress and Perspectives in  
Physics, Chemistry and Technology*

<b>Popov-Raljić, J., Turkulov, J., Karlović, Đ., Pekić, B., Tekić, M., Škrbić, B.</b> Research Activities of the Faculty of Technology.....	213
<b>Bartzer, S.</b> General Models of Transdisciplinarity in Research and Creation.....	221
<b>Mastilović, J., Popov, S., Popov-Raljić, J., Pestorić, M., Psodorov, Đ.</b> Optimization of Fluid Sour Dough Production Procedure for Yugoslav Baking Industry Conditions.....	227
<b>Mastilović, J., Matković, K., Grubor, M., Vučkobratović, R., Psodorov, Đ., Pojić, M.</b> End-Use Quality of Some Yugoslav Wheat Varieties: Fine Leavened Baked Goods.....	231
<b>Pestorić, M., Mastilović, J., Psodorov, Đ., Matković, K., Grubor, M.</b> The Determination of Trading Wheat Quality by the Application of near Infrared Spectroscopy.....	235
<b>Bojat, S., Vukobratović, R., Grujić, O., Šimurina, O.</b> The Application of Brewer's Spent Grain in the Production of Special Bread Types.....	239
<b>Šimurina, O., Vukobratović, R., Bojat, S., Matković, K., Gnip, M.</b> Production and Freezing of Partiall Bakery Products.....	243
<b>Vukobratović, R., Šimurina, O., Bodroža-Solarov, M., Matković, K., Pešić, V.</b> Use of Amaranthus sp. in the Production of Special Bakery Products.....	247
<b>Grujić, O., Bojat, S., Gačeša, S.</b> Brewery Spent Grains - Production, Biochemical and Nutritive Characteristics.....	249
<b>Šarić, M., Psodorov, Đ., Gnip, M., Pojić, M., Šimurina, O., Pestorić, M.</b> Interrelation of Methods for Evaluation of Wheat Varieties Quality for Special Purpose at Recognition.....	253
<b>Šarić, M., Bojat, S., Šimurina, O., Pestorić, M.</b> Quality of Kernel, Flour and Bread – Problems and Solutions.....	259
<b>Gnip, M., Psodorov, Đ., Mastilović, J., Grubor, M., Matković, K., Pestorić, M.</b> Problems in Processing of Bunted Wheat.....	265

<b>Došenović, I., Milić, M., Karadžić, V., Grbić, J., Obradović, S., Radivojević, S., Kabić, D., Jevtić, J.</b>	
Effect of Secondary Infection in Sugar Factory on the Final Product - Consumption White Granulated Sugar .....	269
<b>Filipović, N., Kaluđerski, G.</b>	
Changes in Lipid Compounds Through Breadmaking Process.....	273
<b>Dimić, E., Turkulov, J., Vukša, V.</b>	
A Critical Review on Quality of Norefined Edible Oils .....	277
<b>Đarmati, Z., Filip, S., Švan, K., Savin, A., Nadalin, V.</b>	
Extraction of Some Alternative Oilseeds by Supercritical Carbon Dioxide.....	281
<b>Kabić, D., Obradović, S., Grbić, J., Radivojević, S., Karadžić, V., Došenović, I., Milić, M., Jevtić, R., Vujošević, Z.</b>	
Application of Aluminium Sulphate Solution in Analysis of Sugar Beet Cossettes, Pressed and Extracted Pulp.....	285
<b>Grbić, J., Karadžić, V., Milić, M., Došenović, I., Obradović, S., Jevtić, R., Kabić, D., Radivojević, S., Vujošević, Z.</b>	
Sucrose Losses Caused by Mechanical Injury of Sugar Beets.....	289
<b>Suturović, Z., Marjanović, N.</b>	
Potentiometric Stripping Analysis of Lead and Copper in Consume Sugar .....	293
<b>Gyura, J., Sekulić, R., Lević, Lj.</b>	
Food Additives from Sugar Beet Pulps as Corrective Factor of Energetic Value for Bakery Products .....	297
<b>Jovanović, O., Pajin, B., Karlović, Đ.</b>	
The Effect of Sorbitane Tristearate Emulsifier on the Quality of Chocolate .....	303
<b>Dokić, P., Šefer, I., Sovilj, V., Dokić-Baucal, Lj.</b>	
Dynamics of Aetheroleum Thymi Emulsification .....	307
<b>Lončar, E., Petrović, S., Kolarov, Lj., Malbaša, R.</b>	
Possibility of Talc Application for the Determination of Vitamin B <sub>12</sub> in Tea Fungus Beverage .....	311
<b>Radovan, C., Ciorba, G.A., Vlaicu, I., Manea, F.</b>	
Voltammetric Characteristics for the System Fe (0), Fe (II), Fe (III) and Cr (VI), Cr (III) .....	315
<b>Costisor, O., Mracec, M., Labadi, I., Tudose, R., Vodouiu, C., Brekesi, O.</b>	
Mixed Ligands Complexes of Co (II) and Cu (II) with Pyrazolonic Mannich Bases and 2-Mercaptobenzothiazole.....	319
<b>Caprita, A., Ilija, G., Caprita, R.</b>	
Methods for the Synthesis of Some 2-Chloroethyl Phosphonates .....	323
<b>Caprita, R., Caprita, A.</b>	
Research on Isolation and Purification Methods of Erythrocyte Carbonic Anhydrase .....	327
<b>Spiridon Bizerea, O.</b>	
Influence of the Oxidation Agents from Solution on the Performances of a Cdse - Based Cd - Isme .....	331
<b>Spiridon Bizerea, O.</b>	
Influence of the Atmospheric Oxygen on the Result Scored by Cdse Based Cd - Isme.....	335
<b>Vesković, M., Bikit, I., Krmar, M., Slivka, J., Čonkić, Lj., Žikić, N., Đurčić, Ž.</b>	
NMR on Oriented Nuclei - a Tool for Magnetic Moments Measurements.....	339
<b>Bikit, I., Slivka, J., Vesković, M., Krmar, M., Čonkić, Lj., Žikić, N., Đurčić, Ž.</b>	
Low Level $\gamma$ -spectrometry Facility in Novi Sad.....	343
<b>Bikit, I., Slivka, J., Đurčić, Ž., Žikić, N., Vesković, M., Krmar, M., Čonkić, Lj.</b>	
Double Beta Decay Experiments in Novi Sad.....	347
<b>Bikit, I., Slivka, J., Krmar, M., Čonkić, Lj., Vesković, M., Đurčić, Ž., Žikić, N.</b>	
Radioactivity of Soll Used for Vegetable Breeding near Novi Sad .....	351
<b>Pejin, D., Razmovski, R.</b>	
Industrial Biotechnology of Yeast .....	355

<b>Popov, S.D., Dodić, S.N., Markov, S.L.</b> Viability of Bakery Yeast and Biosorption of Zinc Ions .....	359
<b>Lević, J., Sredanović, S., Lević, Lj., Gyura, J., Sakač, M.</b> The Use Molasses - Urea Concentrates for Improving Quality of Alfalfa Silage.....	363
<b>Lević, Lj., Gyura, J., Soros, Z.</b> Electrokinetic Potential and Conditions of Precipitation of Macromolecular Compounds from Molasses .....	367
<b>Halaši, T., Halaši, R., Lomić, G., Segedinac, M.</b> Synthesis and Investigation of Organic - Sulfur Compounds on the Basis of Carbon Disulfide.....	371
<b>Arman, L., Perišić-Janjić, N., Lazarević, M.</b> The Behavior of Some 1,2,4-Triazoline-3-Thiones in Sulfuric Acid Solutions.....	375
<b>Pode, V., Pode, R., Popovici, E., Burtić, G., Luca, D.</b> Preparation and Magnetic Properties of Ferromagnetic Natural Zeolite.....	379
<b>Kiš, E.E., Marinković-Nedučin, R.P., Lomić, G.A., Bešković, G.C., Jašin, D.S.</b> Real Solid State Catalytic Reactions.....	383
<b>Sasca, V., Popa, A., Docu, N.</b> Development of a Molybdenum Containing Catalyst for Selective Oxidation of Isobutene .....	387
<b>Bizerea, M.</b> Solar Experimental Distilling Still.....	391
<b>Popescu, S., Szabadai, Z., Spilca, P.</b> The Study of Metallophthalocyanine Thin Layers Used as Chemical Sensors.....	395
<b>Gillich, G.R., Praisach, V.I.</b> The Stress Analysis of Industrial Pressure Vessels.....	401
<b>Gillich, G.R.</b> Study of Stress in Cylindrical Thin-Walled Pressure Vessels with Spherical Heads.....	405
<b>Lomić, G.A., Kiš, E.E.</b> The Effects of Component Interactions on SiO <sub>2</sub> Phase Transformation .....	409
<b>Marica, S., Glisici, A., Kovacs, G.</b> Ornamental Tiles Based on Romanian Plioquaternary Basalt Lavas Glazed With Organic or Inorganic Films .....	413
<b>Radonjić, Lj.</b> Superplasticity in Nanostructured Oxide Ceramics Materials .....	419
<b>Ranogajec, J., Kasaš, J., Marinković-Nedučin, R., Đurić, M.</b> Chemical Corrosion Phenomena of Roofing Tiles .....	423
<b>Sinadinović-Fišer, S., Janković, M., Leskovac, S.</b> Blending Indices and Blending Values of Diesel Fuel Components .....	427
<b>Predojević, Z.J., Petrović, D.Lj., Duduković, A.</b> The Influence of the Type Packing on the Pressure Drop and the Flowing Solids Dynamic Holdup in a Gas - Flowing Solid - Fixed Bed Reactor .....	431
<b>Čvorkov, Lj., Popović, I., Veličković, S., Brankov, K., Vukovljak, V.</b> The Dependence of Plastisol Quality on the Type Of PVC and Viscosity Regulator.....	435
<b>Hinescu, L.G., Chiurtu, R., Vasilco, R.</b> Phthalocyanines and Derivatives: Biological and Medical Applications.....	439
<b>Preda, G., Peter, F., Csunderlik, C.</b> Kinetic Resolution of Aromatic Amino Acids with Alcalase and Savinase in Monophasic Organic/Aqueous Systems.....	443
<b>Isac, D., Mracec, M., Simon, Z.</b> The Thermal and Photochemical Decompositions of the Aromatic Diazonium Salts .....	447
<b>Novaković, M., Zavarago, Z. Sabo, G.</b> Ecological Heat Engine with External Combustion.....	453
<b>Ćirić, G., Kostić, V., Mitraković, D., Kaljević, B., Cvetković, M.</b> Optimization of Refinery Resource Allocation .....	457

<b>Jovanić, P., Radeka, M.</b> Characterization of Thermally Treated Ceramic Tiles by Application of IPAS-Methodology .....	461
<b>Klašnja, B., Kopitović, S.</b> Research of the Application of Kraft Lignin for Obtaining the Lignin-Phenolform- aldehyde Resins .....	465
<b>Klašnja, M., Šćiban, M.</b> Kinetics of the Two-stage Anaerobic Process for Treatment of Highly Loaded Wastewaters .....	469

## SECTION

*Progress and Perspectives in  
Biology, Medicine and Public Health*

<b>Maletin, S. Đukić, N., Miljanović, B., Terodorović, I.</b> Composition and Structured of Fish Community in Tamiš River .....	475
<b>Vapa, Lj., Obreht, D., Tanurdžić, M.</b> Genetic Analyses of Cereal Storage Proteins – Towards the Genetically Engineered Bread-Making Quality .....	479
<b>Kostić, T., Andrić, S., Dragišić, Kovačević, R., Marić, D.</b> Nitric Oxide is Involved in Down-Regulation of Testicular Steroidogenesis in Stress Conditions .....	483
<b>Stanković, Ž., Stojanović, S., Pajević, S., Žderić, M., Kilibarda, P.</b> Trace Metals in Some Aquatic Macrophytes of the Danube-Theiss-Danube Hydrosystem .....	487
<b>Vujić, A., Šimić, S., Radišić, P.</b> Fauna of Hoverflies (Diptera: Syrphidae) of the Yugoslavian Part of Banat .....	491
<b>Ivanc, A., Mijanović, B.</b> Seasonal Changes of Differential Leucocyte Count of Farmed Carp. ....	497
<b>Anačkov, G., Vukov, D., Zlatković, B., Krstić, L.</b> Fumaria jankae HAUSSKN. 1873 in Flora of Vojvodina (Yugoslavia) .....	501
<b>Budak, V., Anačkov, G.</b> Distribution of Genus Gagea SALISB and Ornithogalum L. in Flora of Yugoslav Portion of Banat Region .....	505
<b>Kostić, D., Popović, E., Bjelić-Čabrilo, O.</b> Nematofauna of Rana Ridibunda Pallas, 1771 (Amphibia: Anura) from Fishpond Mošorin .....	509
<b>Popović, E., Bjelić-Čabrilo, O., Mičić, R.</b> Trematode Infestation of Cormorant (Phalacrocorax carbo L. 1758) From Bečej and Ruski Krstur Fishponds .....	513
<b>Butorac, B., Gergely, J., Habijan-Mikeš, V., Knežević, A.</b> Lepidium Cartilagineum (May.) Thell. in Banat .....	517
<b>Butorac, B., Gergely, J., Hulo, I., Boža, P., Igić, R.</b> Sternbergia colchiciflora W. et K. – a Postglacial Relict of Banat flora (Vojvodina) .....	519
<b>Igić, R., Pal, B., Budak, V., Vukov, D., Anačkov, G.</b> Species of Anemone Genus in Vojvodina – Distribution and Ecology .....	523
<b>Igić, R., Pal, B., Butorac, B.</b> Highly Endangered Species in Flora of Yugoslav Part of Banat Region .....	527
<b>Matavulj, M., Kovačević, T., Šutić, M., Rajković, V., Ušćebrka, G., Žikić, D., Lažetić, B., Stevanović, D.</b> Effects of Four Months Low Frequency Electromagnetic Field Influence on Thyroid Parenchym and Stroma .....	531

<b>Banovački, Z., Stevanović, D.</b> Species Anatomy and Effects of Various Diets on Life-Cycle of <i>Tribolium madens</i> (Col.: Tenebrionidae).....	537
<b>Stănescu, D.</b> Instinct and Chromatic Perception.....	541
<b>Popa, A., Davidescu, C.M., Trif, R., Csunderlik, C.</b> Biologically Active Polications. Synthesis and Antibacterial Activity of the, Single And Mixed, Ammonium and Phosphonium Salts Grafted on Gel-Type Styrene-Divinylbenzene Copolymers .....	551
<b>Velikić, G., Jakovljević, Đ., Potić, Z.</b> A Way to Standardize the Methodology of Assessments of Surgical Treatment Results .....	555
<b>Schäffer, I.</b> Progress in the Safety Control During the Perioperativeperiod by Using the New Techniques of Monitoring .....	559
<b>Ahmetović, Z.</b> Progress and Prospective of Physical Education and Health - Illusion or Reality .....	563
<b>Mitić, Z., Mišković, G.</b> Preoperative Psychological Preparation of Patients for Operation and Anaesthesia and its Influence on Anaesthesia.....	565
<b>Schäffer, I.</b> New Perspectives in Anaesthesia and Intensive Therapy by Using the Computer Technology .....	569
<b>Cotuna, D., Pilat, L., Cotuna, C., Albu, C., Mera, E.</b> The Immunoglobulins, C <sub>3</sub> Seric Complement and Cortisol Variants in a Group of Sportsmen.....	573
<b>Avram, J., Murariu, M., Miculescu, N., Dorneanu, F., Raduica, M., Toma, D., Avram, R., Banciu, D., Potra, A., Manciu, S.</b> The Technique of Lumbar Laparoscopic Extraperitoneal Sympathectomy .....	577
<b>Avram, J., Cadariu, F., Avram, R., Porta, A., Manciu, S.</b> The Subfascial Endoscopic (Laparoscopic) Surgery of the Perforating Veins of the Calf in the Chronic Venous Insufficiency .....	581
<b>Căpălănașan, J., Tuduțe, I., Perhald, A.</b> The Lack of Cytogenetic Effects in Rat of Magnetite Doses Inducing Polyploidies in Plants.....	583
<b>Avram, J., Murariu, M., Toma, D., Banciu, D., Pop, S., Totolici, B., Avram, R., Tilincă, M., Miculescu, N., Mogoșeanu, M.</b> Treatment of Hernia and Incisional Hernia Associated with Laparoscopic Cholecystectomy in Cholelithiasis.....	587
<b>Cadariu, F., Avram, J., Enache, A.</b> Venous Trauma of the Extremities .....	591
<b>Pădurean, D., Bolte, S., Igna, C., Sala, A., Schuszler, L.</b> Myelography in Dog: Lumbar Approach with Ultravist Contrast Medium.....	593

SECTION  
*Progress and Perspectives in  
Agriculture*

<b>Gvozdenović, D., Starčević, Lj., Kovčín, S., Marković, J., Petrić, D., Babić, M., Škorić, M., Mihajlović, L.</b> Science in Agricultural Production.....	597
<b>Gvozdenović, D., Lazić, B.</b> The Horticultural Science in Federal Republic of Yugoslavia.....	603
<b>Marinković, B., Govedarica, M., Grigorev, V.S., Crnobarac, J., Grujić, M., Jarak, M., Milošević, N., Čačina, T., Aleksandrovna-Emelijanova, K., Semjonovna, Marinković, J., Rajić, M.</b> Biophysical Stimulation and Its Effect on Soil Micobial Activity and Yields of Cultivated Plants.....	607
<b>Marjanović-Jeromela, A., Marinković, R.</b> Inheritance of Plant Height and Lowest Branch Height in Oil Rape ( <i>Brassica napus</i> L.).....	611
<b>Sklenar, P., Kovačev, L., Čačić, N., Nagl, N., Rožić, R.</b> Adaptability and Stability of Sugar Beet Varieties in Agoecological Conditions of Banat.....	615
<b>Čačić, N., Kovačev, L., Sklenar, P., Nagl, N., Mezei, S.</b> Efficiency of Sugar Beet Breeding for Rhizomania Tolerance.....	619
<b>Rajić, M., Marinković, B.</b> Effects of Sowing Date, Fertilization, and Irrigation on The Percentage of Hard Seeds in Sugar Beet.....	623
<b>Karadžić, V., Jevtić, R., Grbić, J., Radivojević, S., Obradović, S., Kabić, D., Došenović, I., Milić, M.</b> Effect of Nitrogen Fertilizer on Yield and Quality of Sugar Beet.....	627
<b>Radivojević, S., Kabić, D., Obradović, S., Karadžić, V., Došenović, I., Grbić, J., Milić, M., Jevtić, R.</b> Bio-Technological Characteristics of Sugar Beet Infected With Rhisomania.....	631
<b>Strniša, J., Jarak, M., Milošević, N., Govedarica, M., Đurić, S.</b> The Effect of Heavy Metals on the Nitrogen Fixation in Pea.....	635
<b>Milošević, N., Govedarica, M., Jarak, M., Đurić, S.</b> Effect of Inoculation with <i>Azotobacter Chroococcum</i> on Corn and Sugar Beet and Biological Activity in Soil.....	639
<b>Ille, I., Ciutina, V.</b> The « M » Inhibitor, a Growth Regulator in the Vine Rootstock Plantations.....	643
<b>Heizer, M. G.</b> The Resurgence of the Grapevine Acariens after the Strong Phytopathogenical Fungus Infections.....	649
<b>Oana, M.</b> A New Vine Rootstock Variety "PRECOCE".....	653
<b>Faur, A.</b> The Effect of Soil Salinity Type and some Agrochemical Treatments on Microelements Content in Perrenial Grasses.....	657
<b>Butnaru, G., Mihacea, S., Kiss, G. B., Vekas, L.</b> Effect of Simulated Hypogravity on the <i>Medicago sativa</i> L. Root Growth and Nodulation.....	661
<b>Bočarov-Stančić, A., Milovac, M., Mašić, Z.</b> A Survey of Natural Occurence of Mycotoxins in Yugoslav Cereals in 1990-1995.....	665
<b>Jurić, V., Radanov Pelagić, V.</b> Natural Occurrence of Aflatoxin B1 in Feedstuffs in Vojvodina During 1997/98.....	669

<b>Sarac, M., Gagrcin, M., Jovanovic, S.</b> The Effect of Selection on Expression and Activity of Cu, Zn-Superoxide Dismutase in Swine.....	673
<b>Sarac, M., Jovanovic, S., Gagrcin, M.</b> Distribution of the Allele Frequencies for Some Important Polymorphic Enzyme and Protein Systems in Two Yugoslav Autochtional Pig Breeds, Moravka and Mangulica .....	677
<b>Gagrčin, M., Kovčín, S., Bošković, V.</b> Effect of Salocyn on Performance and Health Status in Pigs .....	681
<b>Stanačev, V., Savić, S., Kovčín, S., Latkovska, M.</b> Mixing Time on Distribution of Fe and Zn in Mineral Vitamin Premixes .....	685
<b>Pejić, N.</b> Energy - Key Part of Feeding Performance Horses Correctly .....	689
<b>Ušćebrka, G., Gledić, D., Matavulj, M., Žikić, D., Milošević, V.</b> Adrenal Cortex Immature Male Pigs Neonatally Treated with Sex Steroids .....	695
<b>Moř, M., Pinteá, V., Colibar, O.</b> Relaxation Response to the Rabbit Colon, Guinea-Pig Colon and Rat Colon to Ketamine.....	699
<b>Moga Manzât, R., Herman, V., Zecheru, L., Saracuí, N., Florea, D.</b> Etiological and Epidemiological Researches in Cows Mastitis .....	703
<b>Trif, A., Cristina, R.T., Ilař, D.</b> Preliminary Pharmaco-Toxicological Study of Mercurialis Perennis. I. Evaluation of Local Cutaneous Tolerance by Patch Test.....	707
<b>Cristina, R.T., Trif, A., Ilař, D.</b> Preliminary Pharmaco-Toxicological Study of Mercurialis Perennis II. Influence on Milk Yield in Rat Females .....	709
<b>Ťibru, I., Tirziu, E., Colibar, O., Virag, I.</b> The Influence of Methanic Fermentation of Waste over the Medical Interest Bacteria, Virus and Parasites .....	713
<b>Ťibru, I., Timoceanu, V., Tirziu, E., Colibar, O.</b> Biotechnological Procedure of Nonpolluting Stabilization of Semi - Liquid Dejections in Pig Stables .....	717
<b>Colibar, O., Crăiniceanu, E., Anghelina, M., Ťibru, I., Moř, M.</b> Ca and P Level of Broiler Chickens Fed Fullfat Diets Different Supplemented.....	721
<b>Colibar, O., Turcu, I., Crăiniceanu, E., Moř, M.</b> Electrono-Microscopical and Morphopatological changes on Fullfat Soya Fed Broilers.....	725
<b>Colibar, O., Crăiniceanu, E., Moř, M., Ťibru, I.</b> Amino-acids Content of Combined Feeders and Vegetable Proteic Meals .....	729
<b>Belić, S., Belić, A.</b> The Need for a Complex Multidisciplinary Study of Water and soil in Agricultural Regions.....	733
<b>Stojiljković, D., Šekularac, G.</b> Land Reclamation Zoning in South Banat .....	737
<b>Šekularac, G., Stojiljković, D.</b> Irrigation Needed on Area of Čačak .....	741
<b>Živanov, M. B., Živanov, Lj. D., Stojanović, G., Mileusnić, S.</b> Application of Microsystems in Agriculture .....	745
<b>Bošnjak, D.</b> Competition of Basic Field Crops Concerning the Needs for Labour .....	749
<b>Čobanović, K., Milić, D.</b> Regional Distribution of Apple Production in Vojvodina .....	753
<b>Pejanović, R., Mihajlović, D., Tica, N.</b> Yugoslav Agriculture Transition .....	759
<b>Petanec, I., Mihut, V., Fazekas, P., Virag, I.</b> Aspects Regarding the Possibility of Regional Cooperation in the Field of Natural Water Cleaning (Industrial Application) and the Use of the Mud in Agriculture.....	763

<b>Mirel, I., Carabet, A., Virag, I., Silvica, O., Fazekaz, P.</b> Watershed Use for Meteoric Water Captation on the Area of Populous Centres in the Plain Regions.....	767
<b>Virag, I., Fazekas, P., Oncia, S.</b> The Protection of Natural Rivers Against Accidental Spills of Waste Waters of Production Units.....	771

## SECTION

*Progress and Perspectives in  
Environmental Sciences*

<b>Matavuly, M.</b> The International Association for the Danube Research (IAD) – Good Example of the Fruitful Regional Scientific Cooperation.....	777
<b>Dalea, V.</b> Some Aspects Concerning the Environmental Multidisciplinary Research in the Western Part of Romania.....	781
<b>Matavuly, M., Gajin, S., Petrović, O., Radnović, D., Tamaš, I., Zeremski, J., Bokorov, M.</b> Water Phosphatase Activity as a Reliable Indicator of Organic Biodegradable Nontoxic Load of the Aquatic Ecosystems of Banat Region.....	785
<b>Đukić, N., Maletin, S., Miljanović, B., Teodorović, I.</b> Oligochaetes Community as Water Quality Indicator of the River Tamiš.....	793
<b>Šćiban, M., Klačnja, M.</b> Effect of Wood as an Adsorbent for Heavy Metals on the Treated Water Quality.....	797
<b>Petrović, O., Matavuly, M., Gajin, S., Radnović, D., Tamash, I.</b> Surface Freshwater Quality Determination from the Microbiological Point of View and the Yugoslav Law Regulations.....	801
<b>Gajin, S., Matavuly, M., Petrović, O., Radnović, D.</b> Water Quality of the Vrbas – Zrenjanin Section of the Major Canal of the Danube-Theiss-Danube Canal System According to Microbiological Parameters.....	807
<b>Goloshin, B., Gayin, S., Bocharov-Stanchicy, A., Matavuly, M.</b> Influence of Chemical and Bioinsecticide (Larvicides) at Microflora of Surface Waters in Zrenjanin.....	813
<b>Segedinac, M., Halaši, R., Halaši, T.</b> Preparation and Karakterisation of Combined Filters for Water Purification.....	817
<b>Klačnja, M., Šćiban, M.</b> Kinetics of the Two-Stage Anaerobic Process for Treatment of Highly Loaded Wastewaters.....	821
<b>Budakov, Lj., Sekulić, N., Branković, D.</b> Contribution to the Danube Protection.....	825
<b>Vučković, M., Radulović, S., Strajin, D.</b> Aquatic Vascular Macrophytes as Bioindicators of the Begej Canal (Banat, Yugoslavia).....	829
<b>Ivančev-Tumbas, I., Zejak, J., Dalmacija, B.</b> Ozonation of Natural Organic Matter from Groundwater.....	833
<b>Wittmann, G., Dombi, A.</b> The Mechanism of Radical Generating Processes Based on Ozone.....	837
<b>Föglein, K., Dombi, A.</b> Decomposition of Halogenated Hydrocarbons in Silent Electric Discharge.....	841

<b>Ilisz, I., Dombi, A.</b> Investigation of Photocatalytic Reactions in Near-UV-Irradiated Aqueous Suspensions Sensitized by TiO <sub>2</sub> .....	845
<b>László, Z., Dombi, A.</b> Radical Generation by Xenon Excimer VUV Light Source .....	849
<b>Ursoiu, I., Vlad, L., Dalea, V., Haiduc, C.</b> The Impact of Heavy Metals on the Environment and Control Methods .....	853
<b>Botau, D., Bogatu, C., Gheju, M., Iovi, A., Dalea, V., Negrea, P.</b> Researches Concerning the Pretreatment of Some Wastewaters Containing Azo Dyes From a Dyeing and Finishing Establishment by Oxidation With Fenton Reagent .....	861
<b>Kovacs, L.</b> Method of Risk Factors Identification and Assessment from Occupational Safety and Health Point of View in Industrial Activities.....	865
<b>Dalea, V., Vlad, L., Martin, A., Duda, L.</b> Study on Influence of Some Pollutants in the Oxidation and Disinfection Phase of the Treatment Process of a Surface Water.....	869
<b>Iovi, A., Negrea, P., Iovi, C.</b> Studies Concerning the Revaluation of Zinc from Waste Solutions as Primary Fertilizers with Zinc .....	873
<b>Dalea, V., Rus, V., Masu, S., Popescu, G., Reisz, E., Marin, G.</b> Studies for the Recycling of some Waters from Galvanotechnics .....	877
<b>Vlaicu, I., Radovan, C., Ciorba, G.A., Rus, V.</b> Indirect Electrochemical Reduction of Chromium (VI) in Wastewater.....	881
<b>Negrea, A., Negrea, P., Iovi, A.</b> Studies Concerning the Processes of Separation of the Phosphate Ion from Water.....	885
<b>Burtică, G., Pode, R., Bura, M., Grozea, A., Pode, V.</b> The Improvement of Technology for the Treatment of Piscicultural Waters .....	889
<b>Simonović, I., Matavulj, M., Andrić, N., Konstadinović, T., Rajković, V.</b> Alterations in the Thyroid Gland Structure and HORMONE LEVELS under Influence of Low and High Doses of the Pesticide Carbaryl .....	893
<b>Tomka, D.</b> Tourism: From Urban to Nonurban - Reality or Delusion?.....	899
<b>Matavuly, M., Karaman, M., Bokorov, M.</b> Lignicolous Macrofungi of the Vrbas - Zrenjanin Section of the Major Canal Bank Zone of the Danube-Theiss-Danube Canal System .....	903
<b>Kuyunjicy, K., Matavuly, M., Karaman, M., Zeremski, J.</b> Lichenoflora of the Major Canal Region of the Vojvodinian Danube-Theiss-Danube Canal System.....	909
<b>Andrić, S., Kostić, T., Vojinović-Miloradov, M., Dragišić, Stojilković, S.S., Kovačević, R.</b> Acute in Vivo and in Vitro Effects of Transformer Fluids on Rat Testicular Steroidogenesis and Antioxidant Enzyme Activity.....	915
<b>Škrbić, B., Cvejanov, J., Cingeli, V., Đurišić, N.</b> Citrate Process for SO <sub>2</sub> Recovery: Determination of Volumetric Gas-Side Mass Transfer Coefficient.....	919
<b>Klašnja, B., Kopitović, Š.</b> Research of the Application of Kraft Lignin for Obtaining the Lignin-Phenolformaldehyde Resins .....	925
<b>Sokolović, S., Škrbić, B., Poljak, L.</b> N <sub>x</sub> O <sub>y</sub> Formation Mechanism: Reduction and Decomposition Processes in Combustion Systems.....	929

**Radulović, S., Vučković, M., Stojanović, S., Strajin, D.**  
 A Community Nymphaetum Albo - Lutae Nowinski 1928 from Koviljski Rit Wetland Area..... 935

**Lungu, E., Bel, G., Strambeanu, N., Haidic, C., Gheju, M.**  
 Possibilities for the Use of Zeolitic Volcanic Tuff for the Decontamination of Radioactive Waters from Southwestem Area of Romania..... 939

**Popovici, E., Burtică, G., Pode, R., Pode, V., Radoveț, R.**  
 Studies Concerning to Pollution Abatement of Wastewaters on Organoclinoptilolite ..... 943

**Stojanović, S., Nikolić, Lj., Lazić, D.**  
 The Content of the Macroelements (N,P,K) and of the Microelements (Fe,Mn,Zn) of the Emergent Species Phragmites communis Trin. .... 947

**Kavgić, P., Lazić, B., Čobić, T.**  
 Project of "Energy Autonomous and Enviromentaly Clean Farm"..... 951

**Stojanović, S., Nikolić, Lj., Lazić, D.**  
 The Tecent Vascular Flora of the Tamiš River..... 955

**Geantă, M., Strâmbeanu, N., Lungu E., Gheju M.**  
 Modeling and Simulation of Sr<sup>2+</sup> Retention on Ion Exchangers Using Neural Networks ..... 963