XVI. WORKSHOP OF PHYSICAL CHEMISTS AND ELECTROCHEMISTS

BRNO

2016

Table of contents

NANO IN ELECTROCHEMISTRY	11
ELECTROCHEMISTRY AND SURFACE ACTIVITY OF NUCLEIC ACIDS: EFFECTS SEQUENCE, STRUCTURE, CHEMICAL MODIFICATION AND NON-COVALENT	
INTERACTIONS	14
NANO – TODAY'S FASCINATING PHENOMENON	19
WHAT IS SO COOL ON ICE?	24
EFFECT OF CdS QUANTUM DOTS ON DNA DEGRADATION UNDER UV ILLUMINATION	25
ELECTROCHEMICAL BEHAVIOUR OF [N]HELICENES	28
BIOLOGICAL ACTIVITY OF MANGANESE(II) TRITHIOCYANURATE COMPLEXES	S 31
GRAPHENE AND GARPHENE OXIDE FOR BIOSENSING	38
REDOX-PAIR DEFINED ELECTROCHEMICAL DETECTION – BIAMPEROMETRIC SET-UP EXHIBITING "INTERFERENCES-FREE" PERFORMANCE	45
ATOMIC FORCE MICROSCOPY – TOOL TO STUDY NANOMECHANICAL PROPERTIES OF LIVING CELLS AND BIOMATERIALS	48
ENHANCEMENT OF ELECTROCHEMICAL DETECTION IN CAPILLARY ELECTROPHORESIS USING NANOMATERIALS	55
GAS SENSITIVE STRUCTURES WITH N-N NANOJUNCTIONS BASED ON WO _{3-x} NANONEEDLES AND Fe ₂ O ₃ NANOPARTICLES	58
APOFERRITIN AS A NANOCARRIER FOR ACTIVE TARGETING OF DOXORUBICI TOWARDS CANCER CELLS	N 62
ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY BASED BIOSENSOR FOR RAPID DETECTION OF <i>SALMONELLA</i>	66
STUDY OF SURFACE EFFECTS OF SELECTED BIMETALLIC NANOPARTICLES	70
SYNTHESIS OF COPPER COMPLEXES AND THEIR ANTIMICROBIAL ACTIVITY	73
ELECTROCHEMICAL PROPERTIES OF CONFORMATIONAL DERIVATIVES OF (NFFERROCENYLIMINOMETHYL)PHENYLBORONIC ACID	- 78
ELECTROSPINNING OF POLY(VINYL) ALCOHOL AND HYALURONIC ACID	80

XVI. WORKSHOP OF PHYSICAL CHEMISTS AND ELECTROCHEMISTS

BRNO 2016

STATISTICAL PROCESSING OF EXPERIMENTAL DATA FROM TESTING FULLY AUTOMATED ELECTROCHEMICAL APPARATUS FOR APLICATION IN EXTREM CONDITIONS	IE 84
ELECTROCHEMICAL DETERMINATION OF CADMIUM AND TELLURIUM IN BIOSYNTHESIZED AND MICROWAVE OVEN PREPARED CdTe QUANTUM DOTS	5 89
ELECTROCHEMICAL DETECTION OF ZINC IONS USING GLASSY CARBON ELECTRODE MODIFIED WITH ELECTROCHEMICALLY REDUCED GRAPHENE OXIDES	96
GOLD NANOSTRUCTURED SURFACES BASED ON ALUMINA TEMPLATE	100
SOLID-STATE SYNTHESIS OF GOLD NANOPARTICLES FILMS FOR SPECTROSCOPIC MEASUREMENT ENHANCEMENT	104
ZINC-SCHIFF BASE-NOVICIDIN COMPLEX AS A POTENTIAL ANTITUMOR DRU FOR PROSTATE CANCER THERAPY	JG 108
STUDDING OF QDS FLUORSCENCE QUENCHING EFFECT CAUSED BY COVALI CONJUGATION WITH BSA	ENT 115
SYNTHESIS OF SILVER NANOPARTICLES AS ANTIMICROBIAL COATING FOR I EXCHANGE MEMBRANE	ION 119
STRUCTURAL AND THERMODYNAMIC PROPERTIES OF THE QUADRUPLEX IN THE PROMOTER OF THE POU5F1 GENE	N 125
ELECTROCHEMICAL DEPOSITION OF GOLD NANORODS FOR VOCS SENSING	128
THE EFFECT OF WATER CONTAMINATED BY HEAVY METALS ON <i>TRAMETES VERSICOLOR</i>	131
EFFECT OF HYALURONAN ON DIFFUSION PROPERTIES OF ARTIFICIAL CELL MEMBRANE STUDIED BY FLUORESCENCE CORRELATION SPECTROSCOPY	135
EXPOSURE OF RATS TO A MIXTURE OF ARISTOLOCHIC ACID I AND II INFLUENCES GENOTOXICITY OF THESE PLANT ALKALOIDS	139
NATURALLY OCCURRING BASE LESIONS EFFECT THE FOLDING AND THE STABILITY OF THE HUMAN TELOMERE G-QUADRUPLEX	143
FLUORESCENCE CHEMOSENSORS FOR GAS PHASE DETECTION BASED ON NAPHTHALIMIDE DERIVATIVES	146
A NEW APPROACH TO PRETREATMENT OF A PENCIL GRAPHITE ELECTRODE SURFACE FOR 3N-METHYLADENINE DETERMINATION	149

BRNO 2016

XVI. WORKSHOP OF PHYSICAL CHEMISTS AND ELECTROCHEMISTS

FLUORESCENCE PROBE STUDY OF INTERACTIONS BETWEEN CATIONIC	
MICELLES AND NEGATIVELY CHARGED POLYELECTROLYTE	154
PREPARATION OF SILVER NANORODS VIA TEMPLATE BASED METHOD	157
CYTOCHROME B_5 PLAYS A DUAL ROLE IN THE REACTION CYCLE OF CYTOCHROME P450 3A4 DURING OXIDATION OF AN ANTICANCER DRUG	161
ELLIPTICINE	161
SPECTROELECTROCHEMISTRY OF RHENIUM-CATECHOL COMPLEX	164
EFFECT OF ANTI-PAIIL ANTIBODY ON <i>PSEUDOMONAS AERUGINOSA</i> INFECTION IN CELLULAR AND ANIMAL MODELS	ON 168
EFFECT OF LIPOPHILIC MEMBRANE ON PENETRATION OF POTASSIUM LIGNOHUMATE	172
FABRICATION AND CHARACTERIZATION OF SELF-ORDERED MERMISTIVE TO WITH ANODIC OXIDATION	iO ₂ 176
DIHYDROMYRICETIN AND EXPRESSION OF CYTOCHROMES P450 1A1/2 AND CYTOCHROME <i>B</i> ⁵ ON TRANSCRIPTIONAL LEVELS IN RATS	180
EFFICIENCIES OF HUMAN CYTOCHROME P450 3A4 ENCAPSULATED IN LIPOSOMAL AND MICROSOMAL NANOPARTICLES TO ACTIVATE ELLIPTICINE FORM COVALENT DNA ADDUCTS	E TO 183
STUDY OF EFFECT OF HYALURONAN ADDITION TO SEPTONEX MICELLAR SOLUTION	187
AB INITIO STUDY OF SURFACE OF NANOPARTICLES Ag AND Ni	190
EFFECT OF PREPARATION PARAMETERS ON SHORT TiO2 NANOTUBES	194
EFFICIENCIES OF HUMAN CYTOCHROME P450 1A1 EXPRESSED IN EUKARYO AND PROKARYOTIC SYSTEMS IN OXIDATION AND DNA ADDUCT FORMATION BY BENZO[A]PYRENE: A COMPARATIVE STUDY	
DNA BASED BIOSENSOR FOR ELECTROCHEMICAL STUDY OF AROMATIC COMPOUNDS IN BIOLOGICAL MATRIX	201
MATRA-A REAGENT/POLYETHYLENEIMINE COMPLEX TRANSFECTION FOR I TOXIC DNA PLASMID DELIVERY	LOW 205
THE ELECTROCHEMICAL ANALYSIS OF DNA HEXAMER d(GCGAGC)	209
STUDY OF THE GLASS TRANSITION OF CO-AMORPHOUS DRUG BY DMA	212

XVI. WORKSHOP OF PHYSICAL CHEMISTS AND ELECTROCHEMISTS

BRNO

2016

GENERATION OF OXIDATION DOUBLE PEAK OF GUANINE IN URACIL	
SUBSTITUTED DNA FRAGMENT	215
GET TO KNOW METROHM	218
REAL-TIME MONITORING OF INTERACTIONS BY EC-MP-SPR	219