“ALEXANDRU IOAN CUZA” UNIVERSITY

FACULTY OF BIOLOGY

ANNUAL SCIENTIFIC SESSION OF FACULTY OF BIOLOGY

Human impact on the structural and functional diversity of biological systems

IAȘI

26 – 27 OCTOBER 2012

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- Prof. univ. dr. Constantin Toma, m.c. al Academiei Române
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SESSION PROGRAM

FRIDAY, OCTOBER 26, 2012

$16^{00} – 18^{00}$ Registration – Faculty of Biology, 1st floor, Amphitheater B2

SATURDAY, OCTOBER 27, 2012

$8^{30} – 9^{00}$ Registration – Faculty of Biology, 1st floor, Amphitheater B2

$9^{00} – 9^{30}$ Scientific session opening - Faculty of Biology,
1st floor, Amphitheatre B2
Prof. univ. dr. Constantin TOMA, Corresponding Member of the Romanian Academy – *Some considerations on scientific life in the Faculty of Biology*

Plenary lectures - Faculty of Biology, 1st floor, Amphitheater B2

$9^{30} – 9^{50}$ Toader CHIFU – *A view on the botanical nomenclature and the etymological dictionary of systematic botany*

$9^{50} – 10^{10}$ Gheorghe MUSTAȚĂ, Mariana MUSTAȚĂ – *Enigmas and profoundness of the homochromy and mimicry and their biological significance*

$10^{10} – 10^{30}$ Ionel MIRON, Liviu MIRON – *Bio-manipulation of a man-made lake ecosystem case study: The Bicaz Reservoir*

$10^{30} – 10^{50}$ Naela COSTICĂ, Vasile SÂRBU, Anişoara STRATU – *Tips for approaching student centered learning*

$11^{00} – 11^{30}$ Coffee break
Poster presentations

$12^{00} – 13^{30}$ „Anastasie Fătu" Botanical Garden visit - The XXXVI edition of Autumn Flowers Exhibition

$14^{00} – 16^{30}$ Section lectures

$16^{30} – 17^{00}$ Coffee break
Poster presentations

$17^{00} – 18^{30}$ Section lectures

18^{30} Scientific session closing - Faculty of Biology, 1st floor, Amphitheater B2

19^{00} Dinner

SECTION OF ANIMAL BIOLOGY

ORAL PRESENTATIONS

Amphitheater B2: 14^{00}-16^{30}; 17^{00}-18^{30}

MODERATORS:
Prof. dr. Gheorghe MUSTAȚĂ
Conf. dr. Dorel URECHE
Lector dr. Milca PETROVICI

Luminița BEJENARU, Simina STANC, Ludmila BACUMENCO-PÎRNĂU

DIVERSITY OF ANIMAL RESOURCES EXPLOITED IN THE MEDIEVAL URBAN SETTLEMENT OF ORHEI (REPUBLIC OF MOLDAVIA): ARCHAEOZOOLOGICAL DATA

Doina Simona GRECU (MĂTIUȚ)

THE PREVALENCE OF COMMENSALS PROTOZOA IN IASI COUNTY POPULATION EVIDENCED BY FECAL EXAMINATION IN ADULTS AND CHILDREN, WITH BLASTOCYSTIS HOMINIS INCIDENCE

Ion COJOCARU

NATURAL HISTORY MUSEUM OF IASI – TRADITIONS AND PERSPECTIVES

Ion COJOCARU

QUALITATIVE AND QUANTITATIVE ANALYSIS OF THE AQUATIC BEETLE'S COENOSIS FROM CIRIC LAKE (IASI), YEAR 2011

Irinel E. POPESCU, Mircea NICOARĂ

LOSSES OF BIODIVERSITY IN MARITIME DUNE NATURAL RESERVE FROM AGIGEA (CONSTANȚA), A STUDY OF A CASE

Oana JITAR, Gabriel I. PLĂVAN, Mircea NICOARĂ, Marius Andrei RĂU

A REVIEW OF RESEARCH FOCUSED ON THE SEDIMENT POLLUTION WITH HEAVY METALS IN THE BLACK SEA

Ioan Alexandru RADAC, Milca PETROVICI

A PRELIMINARY LIST OF TRUE BUGS (INSECTA: HETEROPTERA) COLECTED IN CEFA NATURE PARK

Mircea-Dan MITROIU

KEESIA MITROIU – AN ENIGMATIC GENUS OF THE SUBFAMILY PIRENINAE (HYMENOPTERA: PTEROMALIDAE)

Mircea-Dan MITROIU

TAXONOMIC REVIEW OF AFROTROPICAL *WATSHAMIA* BOUČEK (HYMENOPTERA: PTEROMALIDAE), WITH DESCRIPTION OF A NEW SPECIES

Ovidiu POPOVICI

MALE GENITALIA IN *SPARASION* (HYMENOPTERA, PLATYGASTROIDEA)

Ioan GHIRA, Roxana SUCIU, Milca PETROVICI Ramona KUTAŞI

FLUCTUATING ASYMMETRY AS INDICATOR OF ENVIRONMENTAL STRESS IN SOME POPULATIONS OF *LACERTA AGILIS* AND *LACERTA VIRIDIS* FROM ROMANIA

Alexandru STRUGARIU, Tiberiu C. SĂHLEAN, Iulian GHERGHEL, Ştefan R. ZAMFIRESCU

DISTRIBUTION AND CURRENT SITUATION OF THE *VIPERA URSINII MOLDAVICA* (REPTILIA: VIPERIDAE) POPULATIONS IN ROMANIA

Stefan R. ZAMFIRESCU, Alexandru STRUGARIU, Iulian GHERGHEL

HERPETOFAUNA OF THE BÂRNOVA-REPEDEA FOREST: A NATURA 2000 PERSPECTIVE

Emanuel TÂRNOVEANU

BIOMETRIC ASPECTS IN ROOK (*CORVUS FRUGILEGUS* L.)

Emanuel TÂRNOVEANU

ETHOLOGICAL STUDY OF THE ROOK (*CORVUS FRUGILEGUS* L.) IN THE WILD AND IN SEMI-CAPTIVITY

Lucian FASOLĂ, Emanuel Ştefan BALTAG, Constantin ION

DISTRIBUTION AND PROTECTION ANALYSIS OF EIGHT CICONIIFORMES SPECIES IN IAŞI COUNTY

Veronica ANTONE

CONGENITAL MALFORMATION OF THE MUFLON LAMBS (*OVIS MUSIMON*) OBSERVED IN ENCLOSURE IN THE MICRORESERVATION OF THE MUSEAL COMPLEX OF NATURAL SCIENCES CONSTANTA

POSTERS

Central hall, 1st floor: $11^{00} – 11^{30}$; 16^{30} - 17^{00}

Mariana POPOVICI, Luminiţa BEJENARU, Simina STANC

AN OSTEOMETRIC ASSESSMENT OF SUINES (*SUS SCROFA FERUS* AND *SUS SCROFA DOMESTICUS*) EXPLOITED IN CHALCOLITHIC SETTLEMENTS FROM EASTERN ROMANIA

Mariana POPOVICI, Simina STANC

MORPHOMETRIC ASPECTS IN PIGS (*SUS SCROFA DOMESTICUS*) OF THE IV^{TH}-X^{TH} CENTURIES ON THE EAST OF ROMANIA

Simina STANC, Luminiţa BEJENARU

BOS TAURUS, *SUS SCROFA DOMESTICUS* AND *OVIS ARIES*/*CAPRA HIRCUS* IMPORTANCE IN FOOD ECONOMY FOR THE BRONZE PERIOD SETTLEMENTS ON ROMANIA TERRITORY

Simina STANC

ARCHAEOZOOLOGICAL ANALYSIS OF THE SAMPLE COMING FROM THE PIATRA FRECĂŢEI SITE (XI-XIITH CENTURIES)

SECTION OF PLANT BIOLOGY

ORAL PRESENTATIONS

Hall B 467**:** $14^{00} – 16^{30}$; $17^{00} – 18^{30}$

MODERATORS:

Prof. univ. dr. Constantin TOMA, Corresponding Member of the Romanian Academy
Conf. univ. dr. Lăcrămioara IVĂNESCU
Lect. univ. dr. Ciprian MÂNZU

Daniela NICUŢĂ, Diana-Elena MAFTEI, Gogu GHIORGHIŢĂ
DATA ON THE *IN VITRO* RESPONSE OF *VACCINIUM CORYMBOSUM* L.

Doina ATOFANI, Anca ANDRO, Irina BOZ, Carmen LAMBAN, Liliane MEGUEKAM TEKAM, Bogdan MANEA, Maria-Magdalena ZAMFIRACHE
VARIATIONS OF SOME PHYSIOLOGICAL PROCESSES AT FOUR APPLE VARIETIES CULTIVATED IN AN ORCHARD FROM MOLDAVIA

Marius Nicuşor GRIGORE, Monica BOSCAIU, Oscar VICENTE
MITIGATION OF SALT STRESS-INDUCED INHIBITION OF *PLANTAGO CRASSIFOLIA* REPRODUCTIVE DEVELOPMENT BY SUPPLEMENTAL CALCIUM AND MAGNESIUM

Mihaela Aurelia IVAN, Maria-Magdalena ZAMFIRACHE, Marius Nicuşor GRIGORE, Doina ATOFANI
PHYSIOLOGICAL RESEARCH ON SOME SPECIES OF THE GENUS *PLANTAGO* L.

Vasilică Claudiu CHINAN, Ciprian MÂNZU
INONOTUS TAMARICIS IN ROMANIA

Gheorghe MIHAI, Mihai COSTICĂ
TAXA OF LOWER RANK (VARIETIES AND FORMS) IDENTIFIED IN ROMANIAN BRYOFLORA

Costel PASCA, Veronica ANTONE
CONTRIBUTIONS AT THE QUANTITATIVE AND QUALITATIVE GROWTH OF WOOD VEGETATIONS IN MUSEUM COMPLEX OF NATURAL SCIENCES (CMSN) PARK

Maria DICA, Petru CUZA
THE VALUE OF ENDANGERED SPECIES: *CARPINUS ORIENTALIS* MILL. FOR THE IMPORTANCE OF BIOLOGICAL DIVERSITY OF REPUBLIC MOLDOVA

Oana ZAMFIRESCU, Ciprian MÂNZU, Sebastian CĂTĂNOIU, Iulian GHERGHEL, Răzvan DEJU
COMMUNITY INTEREST HABITATS WITH *MYRICARIA GERMANICA* OF THE VÂNĂTORI NEAMŢ NATURAL PARK

Oana ZAMFIRESCU, Irina IRIMIA, Toader CHIFU, Ciprian MÂNZU
CONSIDERATIONS ON THE CLASS LEMNETEA IN ROMANIA
Tiberius BALAEŞ, Cătălin TĂNASE
THE SCREENING OF SOME SPONTANEOUS LIGNICOLOUS MACROMYCETES SPECIES

Diana Mihaela PINDARU, Cătălin TĂNASE, Cecilia ARSENE, Romeo Iulian OLARIU
ATMOSPHERIC POLLUTANTS IMPACT ON THE LICHENIZED FUNGI POPULATIONS OF *XANTHORIA PARIETINA* (L.) BELTR. AND *PHAEOPHYSCIA ORBICULARIS* (NECK.) MOBERG (ASCOMYCOTA)

POSTERS
Central hall, 1st floor: 11^{00} – 11^{30}; 16^{30} - 17^{00}

Irina GOSTIN
GLANDULAR AND NON GLANDULAR TRICHOMES FROM *PHLOMIS PUNGENS* WILLD. VAR. *PUNGENS* LEAVES: LIGHT AND SCANNING ELECTRON MICROSCOPY AND HISTOCHEMISTRY OF THE SECRETORY PRODUCTS

Liliane MEGUEKAM TEKAM, Marius Nicuşor GRIGORE, Maria-Magdalena ZAMFIRACHE, Constantin TOMA
COMPARATIVE DATA REGARDING STEM ANATOMY IN FIVE CULTIVARS OF *ARACHIS HYPOGAEA* L. EXPOSED TO SALINITY

Magda COISIN, Lăcrămioara IVĂNESCU, Irina GOSTIN, Elida ROSENHECH, Maria-Magdalena ZAMFIRACHE
SOME HISTO-ANATOMICAL AND MICROMORPHOLOGICAL FEATURES OF EIGHT *SALVIA* TAXA LEAVES

Ana BÎRSAN, **Lilia GROSU**
THE INFLUENCE OF HUMIC SUBSTANCES (LG) ON THE SPECTRUM OF POLYPEPTIDES IN THE *GLYCINE MAX* L. VARIETIES WITH CONTRASTING DROUGH RESISTANCE

Ana BÎRSAN, Cristina SÎTARI
THE INFLUENCE OF FENOLIC SUBSTANCE (OC) ON SEEDS WATER ABSORBTION CAPACITY OF DIFERENT SOYA GENOTIPES

Magda COISIN, Maria Magdalena ZAMFIRACHE, Doina ATOFANI, Elida ROSENHECH, Aurica CIORNEI, Anişoara PRICOP
PHYSIOLOGICAL CHANGES DURING ON PHENOPHASE IN FOLIAR DEVICE OF NINE SPECIES OF *SALVIA* GENUS

Andrei LOBIUC, Maria-Magdalena ZAMFIRACHE, Anisoara STRATU
PHYSIOLOGICAL ASPECTS IN TWO *ANGELICA* L. TAXA (APIACEAE)

Bogdan-Dorin ŞOLTUZU, Maria-Magdalena ZAMFIRACHE
FOLIAR RESPONSE REACTIONS INDUCED BY ATMOSPHERIC POLLUTANTS ON THE *TILIA TOMENTOSA* L. SPECIES FROM IAŞI CITY AREA

SECTION OF MOLECULAR INTERACTIONS IN THE LIVING WORLD

ORAL PRESENTATIONS

Hall B 339 14^{00} - 16^{30}; 17^{00} - 18^{30}

MODERATORS:
Prof. univ. dr. Vlad ARTENIE
Prof. univ. dr. Liliana FOIA
Conf. univ. dr. Mihai LEȘANU

Daniela GHERGHEL, Cosmin Teodor MIHAI, Gabriela VOCHIȚA, Pincu ROTINBERG, Gabriela PĂUN, Gabriel Radu LUCIAN

EFFECT OF TREATMENT WITH DIFFERENT DOSES OF SOME NEW POLYPHENOLIC EXTRACTS OBTAINED FROM HELLEBORUS PURPURASCENS AND GERANIUM ROBERTIANUM UPON VIABILITY AND APOPTOTIC PROCESS OF HeLa CANCEROUS CELLS

Oana CIOANCĂ, Ana Clara APROTOSOAIE, Anca MIRON, Adriana TRIFAN, Monica HĂNCIANU

QUANTIFICATION OF POLYPHENOLS AND THE BIOLOGICAL ACTIVITY OF CHAMOMILE EXTRACTS FROM ROMANIA

Mitică CIORPAC, Lucian GORGAN, Constantin ION

A PRELIMINARY STUDY ON PHYLOGENY OF WARBLES SPECIES (SYLVIIDAE) BASED ON mtDNA SEQUENCES

Radu DRUICĂ, Lucian GORGAN, Răzvan DEJU, Sebastian CĂTĂNOIU

BISON BONASUS INTERSPECIFIC VARIABILITY IDENTIFICATION USING THE MITOCHONDRIAL CYTOCHROME B GENE SEQUENCES

Cosmin Teodor MIHAI, Gabriela VOCHIȚA, Daniela GHERGHEL, Pincu ROTINBERG

EVALUATION OF EXTREMELY LOW FREQUENCY ELECTROMAGNETIC EFFECTS ON DNA INTEGRITY IN NORMAL CELLS

Cosmin Teodor MIHAI, Pincu ROTINBERG, Gabriela VOCHIȚA, Daniela GHERGHEL

THE INTERACTION PATTERN OF ETOPOSIDE WITH VERO CELLS IS INFLUENCED BY LOW FREQUENCY AND INTENSITY ELECTROMAGNETIC FIELD

Gabriela VOCHIȚA, Cosmin Teodor MIHAI, Daniela GHERGHEL, Pincu ROTINBERG, Gabriela PĂUN, Gabriel Radu LUCIAN

THE CELL CYCLE PROGRESION IN HELA CELLS TREATED WITH NEW POLYPHENOLS EXTRACTS OBTAINED BY ULTRAFILTRATION FROM HELEBORUS PURPURASCENS AND GERANIUM ROBERTIANUM

Mihai BULARDA MOROZAN, Costică MISĂILĂ

A STUDY OF SOME HEMATOLOGICAL PARAMETERS IN SUBJECTS WITH MULTIPLE MYELOMA

Mihai BULARDA MOROZAN, Costică MISĂILĂ
THE RESEARCH STUDY ON SOME HEMATOLOGICAL ASPECTS IN SUBJECTS WITH PLASMOCYTOMA

POSTERS
Central hall, 1st floor: $11^{00} – 11^{30}$; $16^{30} - 17^{00}$

Eduard CRAUCIUC, Ovidiu TOMA, Doina IANCU, Dragoş CRAUCIUC
CERVICAL NEOPLASIA CASE STUDIES

Eduard CRAUCIUC, Ovidiu TOMA, Doina IANCU, Dragoş CRAUCIUC
PREVALENCE OF CERVICAL CANCER IN THE COUNTRYSIDE (THE COUNTY OF IAŞI)

Anca Nicoleta ŞUŢAN, Raluca Nicoleta GHEORGHE, Aurel POPESCU, Carmen POPESCU, Ionica DELIU
ASSESSMENT OF GENETIC STABILITY IN MICROPROPAGATED PLANTS OF SOME ORNAMENTAL STRAWBERRY VARIETIES

Cristian TUDOSE, Mihaela Ionela TUDOSE
GENETIC STUDIES REGARDING THE RECURRENCE OF HUMAN FACIAL CONGENITAL ANOMALIES

Tamara BARBĂNEAGRĂ, Mihaela CRISTICA, Elena CIORNEA, Alexandru MANOLIU
INFLUENCE OF NUTRITIVE SUBSTRATE AND pH ON CATALASE AND PEROXIDASE PRODUCTION IN SAPROPHYTIC FUNGUS *RHIZOPUS NIGRICANS*

Cristian S. CÎMPEANU, Mirela M. CÎMPEANU, Călin L. MANIU
CYTOGENETIC EFFECTS OF NEODYMIUM-IRON-BORON (NDFEB) MAGNETIC FIELDS IN *PHASEOLUS VULGARIS* AND *ZEA MAYS*

Smaranda VÂNTU
IN VITRO MULTIPLICATION OF *LAVANDULA ANGUSTIFOLIA* MILL. AND *MATRICARIA CHAMOMILLA* L.

Mirela M. CÎMPEANU, Cristian S. CÎMPEANU, Călin L. MANIU
NEODYMIUM-IRON-BORON (NDFEB) MAGNETIC FIELDS INFLUENCE ON SOME PHYSIOLOGICAL AND CYTOGENETIC PARAMETERS IN *ALLIUM CEPA*

Mihaela CRISTICA, Tamara BARBĂNEAGRĂ, Elena CIORNEA, Alexandru MANOLIU
THE INFLUENCE OF SOME FACTORS ON β-1,4-XYLANASE ACTIVITY OF THE FILAMENTOUS FUNGUS *TRICHODERMA REESEI* QM 9414

Anca Giorgiana GRIGORAŞ, Simona DUNCA, Vasile Cristian GRIGORAŞ
INTERACTION OF POLY(BETAINES) WITH *ESCHERICHIA COLI*

PLENARY LECTURES
Amphitheater B2: 9^{30} - 10^{30}

A VIEW ON THE BOTANICAL NOMENCLATURE AND THE ETYMOLOGICAL DICTIONARY OF SYSTEMATIC BOTANY

TOADER CHIFU[1]
[1]Alexandru Ioan Cuza University, Faculty of Biology, Iaşi, Romania

The botanical nomenclature has its origin in popular names of plants used in many European countries, especially in Ancient Greece. Carl Linnaeus is credited for introducing binary nomenclature. Many of these popular names were the basis for current plant names, which are gathered in some etymological dictionaries of systematic botany.

ENIGMAS AND PROFOUNDNESS OF THE HOMOCHROMY AND MIMICRY AND THEIR BIOLOGICAL SIGNIFICANCE

GHEORGHE MUSTAŢĂ[1], **MARIANA MUSTAŢĂ**[1]
[1]Alexandru Ioan Cuza University, Faculty of Biology, Iaşi, Romania

Homochromy and mimicry are mechanisms of evolution that ensure the survival of species in their struggle for existence. They are considered forms of adaptation that have reached in the superlative. It is about integration in environment, a fusion with it, or assimilation, not a perfect adaptation. It cannot exist a perfect adaptation in a variable and changeable environment. Homochromy and mimicry represent the creation of natural selection, but not only that. It demonstrates the existence of a permanent dialogue of the beings with their vital universe, a semiotic dialogue among species, regardless of their evolutionary level that the living world forms a single whole.The homochromy and mimicry are not only attributes of the higher beings, but of life; we can meet them in the representatives of all kingdoms: Monera, Protista, Fungi, Plantae and Animalia. It is nothing casual and meaningless in nature. We can speak without fear of making mistakes about the intelligence of the living in its ensemble and the intelligence of every human partly, no matter the evolutionary level.

BIO-MANIPULATION OF A MAN-MADE LAKE ECOSYSTEM CASE STUDY: THE BICAZ RESERVOIR

IONEL MIRON[1], **LIVIU MIRON**[2]
[1]Alexandru Ioan Cuza University, Faculty of Biology, Iaşi, Romania
[2]University of Agricultural Sciences and Veterinary Medicine, Faculty of Veterinary Medicine, Iaşi, Romania

The bioproductivity of the hydropower reservoir ecosystems is usually low, due to the effects of the large level oscillations resulting from the variations in water accumulation. The primary production is small, because the macrophytes cannot grow in the littoral zone and the phytoplankton increases only in the photic zone (0-6 m depth). As a consequence of the low basis of the trophic network, the fish populations in the trophic food chain are low. The biotechnological solution for achieving an economically efficient fish biomass consists in the implementation of an aquaculture system, based on ecological diagnosis of the ecosystem and

the bio-manipulation of the abiotic and biotic environmental factors. Nowadays, on the Bicaz reservoir there are four aquaculture trout farms with a productivity of 100 tones/ha.

TIPS FOR APPROACHING STUDENT CENTERED LEARNING

NAELA COSTICĂ[1], VASILE SÂRBU[1], ANIŞOARA STRATU[1]
[1]Alexandru Ioan Cuza University, Faculty of Biology, Iaşi, Romania

Student centered learning (SCL) also named flexible learning, experiential learning or self directed learning transfers the most important steps of didactic activity from professor to student while answering the student's needs and interests in knowing. SCL must be developed in a specific and relevant way for each student necessities of learning. The entire process has an important bottom line: you have to know the student and his/her learning style. The present paper has the aim to discuss the significance of student centered learning, both for the professors, and for the students. At the same time, the main learning styles identified on students in first year of study (specialization Ecology and Biochemistry in the frame of Faculty of Biology, "Alexandru Ioan Cuza" University of Iaşi) will be discussed. Moreover, the main characteristics of students learning styles will be analyzed in order to improve the didactic process directed to develop professional specific competencies.

SECTION OF ANIMAL BIOLOGY

ORAL PRESENTATIONS
Amphitheater B2 $14^{00} – 16^{30}$; 17^{00} - 18^{30}

MODERATORS:
Prof. dr. Gheorghe MUSTAȚĂ
Conf. dr. Dorel URECHE
Lector dr. Milca PETROVICI

DIVERSITY OF ANIMAL RESOURCES EXPLOITED IN THE MEDIEVAL URBAN SETTLEMENT OF ORHEI (REPUBLIC OF MOLDAVIA): ARCHAEOZOOLOGICAL DATA

LUMINIȚA BEJENARU[1], SIMINA STANC[1], LUDMILA BACUMENCO-PÎRNĂU[2]
[1]Alexandru Ioan Cuza University, Faculty of Biology, Iași, Romania
[2]Alexandru Ioan Cuza University, Faculty of History, Iași, Romania

The archaeozoological analysis concerning the medieval levels of the archaeological complex Old Orhei show the diversity of animal resources exploited there through: animal husbandry, hunting and fishing. According to archaeozoological data, the consumers of animal products varied by their ethnicity especially. Thus, if in the period of Mongolian occupation the main domestic species used in alimentation were sheep/goat (*Ovis aries/Capra hircus*), cattle (*Bos taurus*) and horse (*Equus caballus*), later – after Mongolian retreating, the livestock of the local economy was mainly represented by cattle (*Bos taurus*) and pig (*Sus scrofa domesticus*). The hunting and the fishing are less represented in the archaeozoological samples. Among the wild mammals, the red deer (*Cervus elaphus*) and roe deer (*Capreolus capreolus*) are the most frequent as number of remains. The presence of the fallow deer (*Dama dama*), a thermophile species, could indicate the existence of a hunting reservation in the proximity of the Old Orhei. The analysis of the fish remains designate species with high alimentary value such as the sturgeons.

This study was supported by the Romanian research programs CNCS–UEFISCDI PN-II-RU-TE-2011-3-0146 (S. Stanc, L. Bejenaru) and EU, POSDRU, 89/1.5./S/49944 (L. Bacumenco-Pîrnău).

THE PREVALENCE OF COMMENSALS PROTOZOA IN IAŞI COUNTY POPULATION EVIDENCED BY FECAL EXAMINATION IN ADULTS AND CHILDREN, WITH BLASTOCYSTIS HOMINIS INCIDENCE

DOINA SIMONA GRECU (MĂTIUȚ)[1,2,3]
[1]Alexandru Ioan Cuza University, Faculty of Biology, Iași, Romania
[2]D.S.P. Iași - Public Health Diagnostic Laboratory
[3]SC Praxis Medical Investigation Laboratory, Iași

The implication of the commensals protozoa (potentially pathogenic) in clinical pathology are today a major concern of worldwide parasitologists. This is because their frequent involvement in clinical pathology - the evidence of intrinsic pathogenicity (Blastocystis hominis), and also because of increasingly receptivity of human host. The species

studied were: *Blastocystis hominis*, *Endolimax nana*, *Entamoeba coli*, *Entamoeba hartmanii*, *Chilomastix mesnili*, commonly founded in faeces and evidenced by microscopic examination. The study was performed between 01.01.2011 - 01.08.2012 on 8300 people, at DSP - Public Health Diagnostic Laboratory and at SC Praxis Medical Investigation Laboratory for children and adults, in the periodic medical examination context or recommendation from clinician. The cumulative prevalence of the commensals protozoa was 12.89% and the Blastocystis hominis had the highest incidence, 4.93%, followed by *Endolimax nana* - 2.54%, *Entamoeba coli* - 1.92%, *Entamoeba hartmanii* - 1.82% and *Chilomastix mesnili* - 1.6%. The determinations were performed on samples of faeces, without administration of purgative, in wet smear. The method used involved direct microscopic examination of faeces with Lugol's solution 1%. The clinical manifestations begin and evolve when the number of parasitic elements (cysts, trophozoites) exceeds 5 on microscopic field (400) and can be transients or complex and lengthy. Constantly the commensals protozoa do not cause hypereosinophilia.

NATURAL HISTORY MUSEUM OF IASI – TRADITIONS AND PERSPECTIVES

ION COJOCARU[1]
[1]Alexandru Ioan Cuza University, Faculty of Biology, Iași, Romania

Natural History Museum is a cultural institution that has the objective scientific collection and to conserve cultural goods and their recovery priority by exposure, training, education and recreation of the large public. Museum heritage is a representative sample of cultural patrimony. Contemporary museums are considered to be important centers of culture and communication, wherewith the company, the public, to develop a "scientific culture" - to acquire a stock of knowledge concerning the continuous progress of the science. Natural History Museum of Iasi, established on 4 February 1834, occupies a particularly place among country museums, this one being the first museum in the Romanian Kingdoms.

QUALITATIVE AND QUANTITATIVE ANALYSIS OF THE AQUATIC BEETLE'S COENOSIS FROM CIRIC LAKE (IAŞI), YEAR 2011

ION COJOCARU[1]
[1]Alexandru Ioan Cuza University, Faculty of Biology, Iași, Romania

The present study represents a qualitative and quantitative analysis of the community of aquatic beetles collected from Ciric Lake in the year 2011. Sampling data are analyzed on samples and on the stations and make references to data obtained previously for this ecosystem (Cojocaru et col. 2001; 2002, Cojocaru et col. 2003; Cojocaru, 2007a and 2007b). From samples taken monthly between May and September was obtained a total of 330 individuals of aquatic beetles, adults and larvae, enclose in 35 taxa, belonging to 8 families: Dytiscidae, Haliplidae, Noteridae, Hydraenidae, Hydrochidae, Helophoridae, Limnebiidae and Hydrophilidae. The species *Enochrus affinis* Thunb. is new reported in Ciric Lake. For each taxon were calculated ecological indices: numerical abundance, relative abundance, constancy, dominance and index of ecological significance.

LOSSES OF BIODIVERSITY IN MARITIME DUNE NATURAL RESERVE FROM AGIGEA (CONSTANŢA), A STUDY OF A CASE

IRINEL E. POPESCU[1], MIRCEA NICOARĂ[1]
[1]Alexandru Ioan Cuza University, Faculty of Biology, Iaşi, Romania

Our research was made in 2000 – 2010 period in Natural Maritime Dune Reserve from Agigea, in the southern part of Romanian littoral of Black Sea. In 200-2003 we take in laboratory condition 8510 seeds from Agigea and obtained 2,29% damage of seeds rearing nine taxon: *Nikanoria* sp., *Blascoa ephedrae, Idiomacromerus pallistigmus*, one species from Diptera (Cecidomyiidae), *Eupelmus vesicularis*, *Eupelmus microzonus*, *Eupelmus nigricauda*, *Eurytoma* sp., *Eulophidae* sp. The more abundant species were *Nikanoria* sp. (76,41%), *Blascoa ephedrae* (9,74%) and *Idiomacromerus pallistigmus* (9,74%). In 2010 we collect 2800 seeds and obtained 4,57% damage of seeds but rearing just four taxon: *Nikanoria* sp., *Blascoa ephedrae*, Eulophidae sp. 1 and Eulophidae sp. 2. *Nikanoria* sp. was the more abundant species with 79,68%, followed by *Blascoa ephedrae* with 18,75%. In 2010 we obtained no exemplar of *Idiomacromerus pallistigmus*, this species being a primary parasitoid of *Blascoa ephedrae*, this situation being probably the explanation of the double value of domination of this phytophagous pteromalid. There are signs that it's a losses of biodiversity in this natural reserve because of the antropic pressure, especially by changing the natural conditions of the maritime dunes and the invasions of ruderal plants that colonize this natural reserve that have a tendency to being a disturbed one.

A REVIEW OF RESEARCH FOCUSED ON THE SEDIMENT POLLUTION WITH HEAVY METALS IN THE BLACK SEA

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Heavy metals are present everywhere in the environment (water, air and soil), mostly being the result of human activities, but the highest concentrations are in the sediments. The contaminated sediments may represent a risk for aquatic life, especially for benthic organisms. Distribution of heavy metals concentrations in the sediments is influenced by natural and anthropogenic sources and depends on the mineralogy and grain size of sediment. The sediments with finer texture and a higher content of organic matter tend to accumulate higher concentrations of heavy metals in comparison with the course sediments. Many studies focused on heavy metals have shown that the spatial distribution of heavy metals concentrations in different geographical areas of the Black Sea showed a high degree of variability, depending on the item, sediment type, distance from shore and the influence of anthropogenic sources.

A PRELIMINARY LIST OF TRUE BUGS (INSECTA: HETEROPTERA) COLECTED IN CEFA NATURE PARK

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Cefa Nature Park is located at 25 km SW from Oradea and is a wetland of international importance, with large area of swamps, fishponds, channels, floodplains, forest and pastures. A total number of 66 species of true bugs were recorded, belonging to 55 genera and 17 families. The most representative family is Pentatomidae with 16 genera and 19 species. Specimens were collected from five different habitats by hand, pitfall traps and sweep net. The pitfall traps were active between May 2009 and April 2010 and the sweep net sampling took place in May 2012. Two important species were reported. A rare mycetophagus species, *Aradus betulae* (Linnaeus 1758) was found in Rădvani Forest under a dead *Quercus robur* tree bark. The exquisite preferences of the species on food and habitat show a good forest management in the region. The second species is the western conifer seed bug *Leptogrosus occidentalis* (Heidemann 1910) recorded for the third time in Romania after being mentioned in 2009 for the first time for Romania. The species was found only during cold season under tree bark or inside the buildings. This fact points that Cefa Nature Park offers a good overwintering habitats for this species.

KEESIA MITROIU – AN ENIGMATIC GENUS OF THE SUBFAMILY PIRENINAE (HYMENOPTERA: PTEROMALIDAE)

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The genus *Keesia* (Hymenoptera: Pteromalidae: Pireninae) was recently described (Mitroiu, 2011) and has two known species: *K. dorsellata* Mitroiu (type species), found in Indonesia and *K. tripotini* Mitroiu, described from South Korea. The morphological characters of *Keesia* are discussed in the broader context of the subfamily Pireninae and new records of *K. tripotini* are presented.

TAXONOMIC REVIEW OF AFROTROPICAL *WATSHAMIA* BOUČEK (HYMENOPTERA: PTEROMALIDAE), WITH DESCRIPTION OF A NEW SPECIES

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Watshamia Bouček, 1974 (Hymenoptera: Pteromalidae) has three known world species described by Bouček (1974): *W. versicolor* and *W. turneri* (Afrotropical), and *W. malaica* (Oriental). Here, a new species of *Watshamia* is described from Kenya. It is the only known species in which females have hyaline fore wings. Wing interference pattern (WIP) is used for the first time in the taxonomy of Pteromalidae as a differential feature. An illustrated key to females and males of Afrotropical *Watshamia* is given and the first indications of the biology of the Afrotropical species are presented. *Watshamia versicolor* is newly reported from the Democratic Republic of Congo.

MALE GENITALIA IN *SPARASION* (HYMENOPTERA, PLATYGASTROIDEA)

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The structure of external male genitalia is often used in taxonomical studies. In this study, the morfology of copulatury organ in *Sparasion* is presented. This study was supported by POSDRU/89/1.5/S/63663.

FLUCTUATING ASYMMETRY AS INDICATOR OF ENVIRONMENTAL STRESS IN SOME POPULATIONS OF *LACERTA AGILIS* AND *LACERTA VIRIDIS* FROM ROMANIA

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The aim of this study is to prove the existence of a correlation between anthropogenic factors and the fluctuating asymmetry in two species of lizards from Romania. Fluctuating asymmetry is a nondirectional deviation from perfect symmetry that occurs when normal ontogenetic development is perturbed. 190 specimens (males, females and juveniles) belonging to two species (*Lacerta agilis* and *Lacerta viridis*) from 38 localities were collected. In order to evaluate the fluctuating asymmetry, supralabial and sublabial scales and also the femoral pores were counted on the left, respectively on the right side of each lizard. The statistical analysis shows a strong positive correlation between fluctuating asymmetry and environmental stress of the two lizard species. Also, the statistics revealed that there are no significant differences of the fluctuating asymmetry between the species (*Lacerta agilis* and *Lacerta viridis*), the sexes and the age (adults and juveniles).

DISTRIBUTION AND CURRENT SITUATION OF THE *VIPERA URSINII MOLDAVICA* (REPTILIA: VIPERIDAE) POPULATIONS IN ROMANIA

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Snakes currently represent one of the most threatened verterbate groups, their vulnerability to extinction being given by both intrisec biological characteristics and by numerous forms of human impact. The meadow viper (*Vipera ursinii*) is a polytipic, small-sized, venomous snake species that has a wide but very fragmented European range, covering parts of France, Italy, Greece, Hungary, Romania and the Former Yugoslavia. Despite its wide range, *V. ursinii* is considered to be the most threatened European snake species, the species already being extinct from Austria, Bulgaria and the Republic of Moldova. *Vipera ursinii moldavica* is a subspecies of the Meadow viper which is currently endemic to eastern Romania

and considered critically endangered (CR) by the IUCN. The aim of this study was to investigate the distribution and asses the current situation of *V. u. moldavica* populations from Romania with emphasis on their general habitat characteristics and implications for conservation. Surveys were conducted both in previously known habitats populated by *V. u. moldavica* and in potential habitats identified via GIS techniques. Only six populations of this taxon were confirmed by our surveys and the Danube Delta habitats and populations appear to be larger but similarly threatened if compared to the Moldavian populations.

HERPETOFAUNA OF THE BÂRNOVA-REPEDEA FOREST: A NATURA 2000 PERSPECTIVE

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Amphibians and reptiles are among the most threatened organisms of the world. In the European Union, the Natura 2000 network of protected areas was founded in order to efficiently protect the endangered species and habitats. The amphibians and reptiles of community interest contributed to the designation of most of these areas. The Bârnova-Repedea forest is a Natura 2000 site (ROSCI0135) whose designation was based among others on the presence of one Natura 2000 amphibian and five amphibian and reptile species of lesser conservation importance, according to the standard data form. Our recent investigations in the area revealed a far richer herpetofauna relevant for conservation: 4 Natura 2000 species and another 13 species of Community and national interest. One particular taxon, i.e. *Vipera* [*berus*] *nikolskii*, requires, in our opinion, a particular consideration as it has been identified for the first time in Romania, from this site. Another result of our research is that many places, marginal to the site, but richer in amphibians and reptiles, have not been considered for inclusion in the protected area. This conclusion supports the fact that the process of designation was carried out based on hasted, poorly-documented surveys and therefore the area has been improperly delimited.

BIOMETRIC ASPECTS IN ROOK (*CORVUS FRUGILEGUS* L.)

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The paper presents measurements made on 56 rook eggs and on 92 rook chicks, all collected from Iasi in the spring of 2011. The number of eggs laid may vary between 1 and 6. The biometric study of eggs consisted in the measurement of three characters: weight, the small diameter and the big diameter. The chick goes through three post embryonic development stages: with down, with developing plumage and with fully completed moult. We have measured 16 characters for chicks: weight, total body length, body width, body height, keel length, head length, head width, head height, beak length, beak width, beak height, openness of wings, forearm length, tarsus length, tarsus width and third finger length. For the research of this type we used seven statistic descriptors such as: the minimal value, the maximal value, the arithmetic average, the standard deviation, the variation quotient, the linear regression and the determination quotient. This way we carried out the first biometric study of the egg and the chick of this species and the results are unique data collected in Romania at least.

ETHOLOGICAL STUDY OF THE ROOK (*CORVUS FRUGILEGUS* L.) IN THE WILD AND IN SEMI-CAPTIVITY

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The aspects under study in this paper refer to reproductive activity, feeding, roosting, behaviour of the rook in nature and in circumstances of semi-captivity. In Tătărași (Iasi), starting with spring 2011 we carried out observations in 10 rook nests, focusing on the following aspects: copulation, laying the eggs, incubation, hatching, post-embryonic development and fledging. In 2010, we experimentally kept 5 fledglings in semi-captivity and we fed them with a varied diet, following their eating preferences. We've already mentioned this experiment in the 2011 issue of Scientific Annals of „Alexandru Ioan Cuza" University of Iaşi, New Series, Section I Animal Biology, Tom LVII. Many fledglings starve in case of falling off the branch, because parents usually stop providing them food. Only healthy chicks are taken care of. As an element of scientific novelty in the spring of 2012 we have recorded for the first time a case in which the parents adapted to the chick's weak flying abilities by feeding it in the lower part of the tree.

DISTRIBUTION AND PROTECTION ANALYSIS OF EIGHT CICONIIFORMES SPECIES IN IASI COUNTY

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Natura 2000 is the main tool of the European Union nature protection and biodiversity conservation. Our study area is located at the Eastern border of the European Union covering the administrative territory of Iasi County. Here, there are 6 Natura 2000, Special Protected Areas (SPA), which cover little over 8 % of the total territory. During 2008 – 2012 period we have been developing an ornithological study covering all the SPAs for water birds (half of the total SPA territory) and almost 50 % of the wetlands from Iasi County. For this study we chose 8 bird species (*Platalea leucorodia*, *Ixobrychus minutus*, *Nycticorax nycticorax*, *Ardeola raloides*, *Ardea purpurea*, *Ardea cinerea*, *Casmerodius albus* and *Egretta garzetta*) from Ciconiiformes Order. Except Grey Heron (*Ardea cinerea*), all species are listed in Anex I, Bird Directive (2009/147/EC). The main purpose of our study was to analyse the distribution of these 8 bird species in Iasi County in relation with the anthropic impact and suitable habitat availability. Also, we analyse how SPAs cover our target species distribution. These 8 bird species, which were studied during 5 years, are widespread in Iasi County being more common in wetlands with shallow water and reed beds. Only Spoonbill (*Platalea leucorodia*) has an insular distribution. Using Protected Area Tools for ESRI ArcGIS we calculate the Environmental Risk Surface (ERS) and Relative Biodiversity Index (RBI) for this species and their specific habitats. The results of this analysis show that 16.5 % of the Iasi County is covered by study species and their habitats, but only 21.61 % of them are in SPAs. According to our analysis 5,2 % of the Iasi County represents areas with high RBI, and 32.77 % of these areas are in SPAs. Analysing RBI in relation with ERS we have found a big percentage of wetland areas with High RBI and low ERS (45.27 %) and out of which, 30.1% are included in Natura 2000 Special Protected Areas. ERS and RBI are useful tools for protected areas design and management, but also for an efficient implementation of species conservation measures.

CONGENITAL MALFORMATION OF THE MUFLON LAMBS (*OVIS MUSIMON*) OBSERVED IN ENCLOSURE IN THE MICRORESERVATION OF THE MUSEAL COMPLEX OF NATURAL SCIENCES CONSTANȚA

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The paper presents 3 types of malformations of the internal organs observed at the muflon lambs borned in enclosure. These malformations appeared at the circulatory, digestive and excretive system and have caused death of the lambs after 2-3 days of their calving. Due to the phenomenon of inbreeding (25 years of enclosure) and/or the accumulation of hydrocarbons and heavy metals (proven by biochemical analysis) of the adults (parents).

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AN OSTEOMETRIC ASSESSMENT OF SUINES (*SUS SCROFA FERUS* AND *SUS SCROFA DOMESTICUS*) EXPLOITED IN CHALCOLITHIC SETTLEMENTS FROM EASTERN ROMANIA

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The study of skeletal variability is very important in archaeozoology in order to understand the morphological evolution of a species. Our study is focused mainly on variation and osteometric differences between wild boar and domestic pigs from eastern Romania in Chalcolithic period (transition between Neolithic and Bronze Age): Precucuteni (4800-4500 B.C.) and Cucuteni Cultures (4600-3500 CAL. B.C). Only bone remains of adult individuals were used; the estimation of age are based on both fusion of post-cranial bones epiphyses and degree of erosion of occlusal surface in teeth. The relevant measurements recorded on different anatomical elements (scapula, tibia, humerus, metapodials, femur and teeth) were taken using both traditional and computerised techniques. The relationships between variables were synthesized using multivariate analysis. This method was developed to take apart and graphically present clusters of intercorrelated variables (i.e. the lower third molar, scapula). The differences between samples from these two cultures were analyzed in discriminant analysis (DA). Our results reveal that the *palustris* type characterizes the pigs of these two Neolithic periods. A significant decrease of pig size in Cucuteni Culture is obvious; these are more marked in radius and scapula according to results of DA. A clear overlap between the size-ranges of the pig bones from the both contexts is obvious, underlining the assumption of interbreeding between wild and domestic populations.

This study was supported by the programs CNCS –UEFISCDI PN-II-RUTE- 2011-3-0146 and POSDRU/89/1.5/S/49944.

MORPHOMETRIC ASPECTS IN PIGS (*SUS SCROFA DOMESTICUS*) OF THE IVTH-XTH CENTURIES ON THE EAST OF ROMANIA

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This study has been realized on the analysis of fauna samples coming from archaeological sites in Moldavia (Nicolina, Gara Banca, Todiresti, Poiana, Podeni, Davideni, Stefan cel Mare, Lozna), dated in the IVth-Xth centuries. These samples include a total of 8767 mammal remains and about 10% of them belong to pigs. Measurements for anatomical elements (tibia, humerus, scapula, molars, metapodials) were taken with a vernier caliper according to von den Driesh (1976). Given that the material is quite fragmented, we focus on width dimensions. Teichert index was used for the withers height of pigs. Our results show that the pigs exploited in settlements from Moldovia were primitive: long mandibular symphysis, convex front and an elongated snout and quite similar in shape to that of the wild boar. According to Teichert index, an increase of pig size in time is evident from the IVth-Vth centuries (Podeni settlement) toVIIIth-IXth centuries (Poiana settlement). Among the permanent molars, the lower third molar (M3) is considered an indicator to investigate phenotypic diversity in pigs, therefore the bimodal distribution of data and bivariate analysis tend to corroborate the role of this anatomical element in sexual dimorphism.

This study was supported by the Romanian research program CNCS–UEFISCDI PN-II-RUTE-2011-3-0146 and POSDRU/89/1.5/S/49944.

BOS TAURUS, SUS SCROFA DOMESTICUS AND *OVIS ARIES*/*CAPRA HIRCUS* IMPORTANCE IN FOOD ECONOMY FOR THE BRONZE PERIOD SETTLEMENTS ON ROMANIA TERRITORY

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Mammal remains of the Bronze Period in Romania are described in terms of their frequencies based on the NISP (number of identified specimens) and in terms of the size of the animals consumed. The species discussed are cattle (*Bos taurus*), sheep (*Ovis aries*), goat (*Capra hircus*), pig (*Sus scrofa domesticus*). Among the animal resources, domestic mammals constitute the majority and cattle dominate as NISP in all assemblages. Animal husbandry was an important subsistence activity during Bronze Age in Romania. Cattle dominate the assemblages in Bronze Age, especially in the second half of period. Sheep-goat is dominant in the transition period, and then comes on the second place, excepting in the Middle Bronze Age when the pig comes on the second place. A summary of archaeozoological studies in the area shows that regional variation characterizes the assemblages. In Moldavia, Muntenia and Oltenia, the settlement were more oriented toward cattle husbandry (over 60% NISP); sheep-goat is on the second place, and pig on the third. In Transylvania and Banat, cattle is also dominant but with a lower frequency (about 46% NISP); pig is on the second place, and sheep-goat on the third.

This study was supported by the Romanian research program CNCSIS Idei PN-II-RU-TE-2011-3-0146.

ARCHAEOZOOLOGICAL ANALYSIS OF THE SAMPLE COMING FROM THE PIATRA FRECĂŢEI SITE (XI-XIITH CENTURIES)

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During the excavations carried out in 1999-2002 at Piatra Frecatei site (on the place of Beroe settlement) was found materials dated in XI-XII centuries. Piatra Frecatei settlement is on the Danube River bank, 3 km from the village of Ostrov (Tulcea County). Archaeozoological sample consists of 3923 remains, of which three belong to the human (*Homo sapiens*), 86 to the birds, 316 to the fish, and the rest to the mammals (3518). Most of the mammals remains belong to the domestic one (56.75%); in this group, species with the highest representation (32.72% of the total mammal remains) are *Bos taurus* followed by *Ovis aries*/*Capra hircus* and *Sus scrofa domesticus*, with similar percentages. Other identified species of domestic mammals are: *Equus caballus*, *Equus asinus* and *Felis domesticus*, each with lower proportions of 1% in the group of mammals. Wild mammals also have a significant share (43.25%), which is an indication that hunting was an important occupation for the inhabitants of this settlement. Identified species are: *Cervus elaphus*, *Sus scrofa ferus*, *Capreolus capreolus*, *Lepus europaeus*, *Vulpes vulpes*, *Canis lupus*, *Castor fiber* and *Bos primigenius*; red deer and wild boar have the highest proportion in the group of wild mammals. Bird species identified are large cormorant, mute swan, rook, white-tailed eagle, domestic hen, coot; some remains were identified only by the level of gender, as duck and goose, and could not clearly distinguish bones between domestic and wild species.

This study was supported by the Romanian research program CNCS – UEFISCDI PN-II-RU-TE-2011-3-0146.

THE URBAN POPULATION OF THE MEDIEVAL IAŞI. PATHOLOGICAL ASPECTS

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This article analyzes the bone related pathologies and their prevalence, outlined in two anthropological series discovered in Iasi, dating from the Medieval Age. The first osteological series unearthed in 2008 from the necropolois located on the eastern side of Curtea Domnească was dated from the XVIIth century and includes 111 human skeletons. The second osteological series, dated from the XVIth-XIXth centuries and comprised of 67 skeletons, was unearthed in 2011 on the premises of the Banu Church of Iasi, pursuant to the edifice reinforcement and rehabilitation works. In both osteological series, the cranial segments frequently display odontopathies, which can give us significant information concerning the eating habits of the population who lived during the Medieval Period. Other anomalies, such as Wormian bones, external cranial vault, hypodontia and partial edentation, are a rare occurrence. As regards the postcranial segment, sacralization is the most commonly encountered anomaly in the skeletons unearthead from the eastern side of Curtea Domnească, while the skeletons unearthed from the necropolis of the Banu Church most frequently display additional articulation faces of the tibia. We stated low trauma rates, which is a plausible argument that this population was less involved in violent incidents.

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THE MORPHOLOGY OF *BLASTOCISTYS HOMINIS* LIFE FORMS FROM FAECES SAMPLES IN DIRECT MICROSCOPIC PREPARATION AND SPECIFIC STAINS

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Blastocystis hominis is an enteric protozoan, who has four stages of development with different morphologies: the central body form or vacuolar form, granular, amoeboidal and cystic form. It is considered to be an extremely controversial parasite not only because of the morphology but also for the taxonomy and clinical semnifications. The aim of this presentation is to highlight the morphological aspects of the parasite by usual and specific colorations. We used the direct wet method with Lugol solution for microscopy, dry with methilen Blue and fixed samples colorated with Acridine-Orange stain, Tricrom Masson and Babeş-Papanicolau. The samples were precessed by following the insertion of the stains kit. We used the Lugol stain as a screening for the diagnostic, while the complex staining offered us structural details and the possibility to identify different stages of development.

SPATIAL AND TEMPORAL DISTRIBUTION OF LUMBRICIDAE POPULATIONS (LUMBRICIDAE, OLOGOCHAETA) IN THE SPRUCE FOREST (ARGES COUNTY)

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The present work analyses the frequency (F), constancy (C) Dzuba ecological significance index (W), aggregation (λ), dispersion (i) expansion (E), dominance (D) and total responsiveness (R) of fauna lumbricidae in the spruce forest of Cândesti Piedmond, in the SE of Arges County, from March to October 2007. The frequency index had low values at the levels of soil analysed (S1, S2, S3, S4, S5), and most species had accessory and incidental status. The ecological significance index showed a high number of resident and subresident species. Values of aggregation and expansion indices were higher in *Aporrectodea rosea rosea* and *Octolasion lacteum* species, while the dispersion index showed no significant difference between the species identified. *Octolasion lacteum* and *Aporrectodea rosea rosea* were eudominant species, and total responsiveness was 100%. The results obtained were different from species to species illustrating the function of each species, with a greater or lesser role in the ecosystem. For these reasons, the spruce forest has a less diverse fauna for this group of invertebrates with strong tendency of aggregation. This study aims at the organization and functioning of populations of Lumbricidae offered by a spruce ecosystem.

PRELIMINARY STUDY ON BENTHIC MACROINVERTEBRATES DENSITY AT JIJIA AND MILETIN PONDS (ROSPA0042)

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Ponds were defined as waterbodies which may be permanent or seasonal (man-made or natural), offering to the water plants the potential to colonize almost the entire area of the pond. Our study was made on benthic organisms sampled during the year of 2011 in the fish ponds from Larga Jijia, Vlădeni Pond, Hălceni Dam Lake and Miletin River that forms the last one. The water quality monitoring made by the Romanian authorities still doesn't include these fish ponds despite the conservative importance of the protected area -that includes our sampling sites. In the standing waters we sampled the highest density was registered for insect larvae (such as Heteroptera: Corixidae; Diptera: Chironomidae), oligochaetes (Oligochaeta: Branchiuridae) and Molluscs (mostly Physidae and Valvatidae at Vlădeni and Larga Jijia and Unionidae in Hălceni Dam Lake) as the most important component of the communities with no major differences in the taxa list. Our study is partially filling the lack of recent researches on the invertebrate fauna as secondary production, an important feeding source for its fish and birds, and also brings new data on the annually dynamics of the invertebrates from ponds used in aquaculture.

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DETERMINATION OF QUALITY OF RIVER ȘOROGARI USING BENTHIC MACROINVERTEBRATES COMMUNITIES

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Compared to previous research, we may state that no detailed monitoring of the benthic macroinvertebrates has been made in the area where samples were taken from. A total number of 11 taxa of benthic macroinvertebrates were discovered in the course of the research, 268 individuals in total. The most present species was *Tubifex tubifex*, the Tr. Limoniini being situated to the other pole with only one individual identified at Station 3 – exit of Iasi City. All of these organisms had a very important role in the purposed study, namely, quality and pollution level determination of Șorogari River.

STUDY OF MACROINVERTEBRATE DIVERSITY IN RIVER NICOLINA, IAȘI, YEAR 2012

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A total number of 35 taxa of benthic macroinvertebrates were found in the course of the research in 2012 in River Nicolina, whereas 36 taxa were found in 2010 in the same river. Most of the species, 21, were found at station 1, Oborul de vite. This station is situated at the entrance of Iasi town, where the anthropic activity is low, thus the diversity is high. The lowest evenness index, 0.273, was in 2012-05-27 whereas the diversity index had the lowest value, 1.56 thus it is indicated a low diversity comparing the research from other periods. The higher

the anthropic activity and chemical and physical factors, the smaller macroinvertebrate diversity.

STUDY OF MACROINVERTEBRATE DIVERSITY IN BAHLUI RIVER, ACROSS IAŞI TOWN

GABRIEL PLĂVAN[1], MIRCEA NICOARĂ[1], CĂTĂLINA TOPA[2], MARIUS ANDREI RĂU[1]

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A total number of 18 benthic macroinvertebrate species was found in 2012, months of: March, April and May, in Metalurgie, Podul Roş and Pod Dacia stations. These benthic macroinvertebrates comprised three animal phylla – Arthropoda, Annelida, and Mollusca. *Tubifex tubifex* is the only species present in all the three stations of Bahlui River. The presence of this species may indicate a negative impact on water quality because the species is characteristic to low oxygen level waters. The highest diversity index was 1.66 in March and the lowest one was 0.87 in May. The evenness index varied as follows: 0.36 in March to 0.29 in April and 0.23 in May.

RESEARCH ON THE COMPOSITION OF EPIGEAN FAUNA IN THREE TYPES OF HABITATS FROM VALEA UZULUI, BACĂU

ROXANA ELENA VOICU[1], CAMELIA URECHE[1], LUCIANA TRIFĂNESCU[1]

[1]University Vasile Alecsandri of Bacău, Bacău, Romania

Our research were carried out in two stages (July 2010 and July 2011) and in three types of forests (with beech and hornbeam, oak and hornbeam and pine plantation) located in Valea Uzului, Bacau County. In order to establish the composition of epigean fauna i.e. quantitative and qualitative structure of the invertebrate communities, the biological material was sampled by using soil Barber traps and it was processed in the laboratory and identified. An amount of 10015 individuals belonging to invertebrates was sampled in all of the three types of forest, with an unequal numerical distribution: 3950 individuals in the first type of forest (beech and hornbeam), 2258 individuals in the second type of forest (oak and hornbeam) and 3807 individuals in pine plantation. We found that the individuals sampled in all of the three types of forest belong to 9 invertebrate classes and 17 orders. Three of the 9 classes are numerically dominant: Insecta (3381 individuals; 33.76%), Arachnida (3099 individuals; 30.94%) and Entognatha (2899 individuals; 29.85%). Eight of the 17 orders belong to insect class and the best represented are coleopterans (1409 individuals; 41.67%) followed by hymenopterans (1307 individuals; 38.66%) and dipterans (513 individuals; 15.17%). Some of coleopterans families were well represented: Carabidae (513 individuals; 41.67%) followed by Staphylinidae (315 individuals; 25.59%) and Silphidae (159 individuals; 12.92%). Carabidae family was represented by a number of 9 genera of which *Pterostichus* and *Carabus* were dominant (76.47%, respectively 17.30%). From the point of view of the food regime we found that the predators are dominant (40.54%) and they are followed by the detritivorous species (35.94%) and by the omnivorous species (15.77%).

HIND WING STRUCTURE IN SEVERAL *DORCADION* SPECIES (COL. CERAMBYCIDAE)

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The morphology of the hind wing rudiments in eleven *Dorcadion* species is presented. All studied species show complete reduction of wing veins. Under the microscope the wings present microtrichiae, trichoid and campaniform sensilla; in several species, these structures were further analyzed using scanning electron microscopy. No obvious sexual dimorphism in the wing shape was found. The rudimentary wings show a large intraspecific variation and the interspecific differences are not evident.

This work was sustained by the post-doctoral programme POSDRU/89/1.5/S/49944 "Developing the innovation capacity and improving the impact of research through post-doctoral programmes".

CONTRIBUTION TO THE KNOWLEDGE OF THE GROUND BEETLES (COLEOPTERA: CARABIDAE) FROM THE URBAN AND SUBURBAN AREAS OF THE TIMISOARA CITY (WEST ROMANIA)

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Even though the ground beetles were studied for a long time in Romania there is still a lot of missing data regarding the distribution of the species. The purpose of this study was to improve the knowledge of this group in the west part of Romania, specifically from the urban and suburban areas of the city Timisoara. The samples were collected using Barber pitfall traps in four sampling sites, two in the urban area and two in the suburban area, active for seven months from April until October 2010. In total 316 individuals were captured belonging to 35 species. A clear difference in the species richness is registered between the urban area (17 species) and suburban area (32 species) with 12 common species between them. Shannon-Wiener diversity index show that the diversity grows from the urban area (H=1.90) to the suburban (H=2.74), which was aspected because of the lower antropogenic influence. Species with high abundance were *Brachinus crepitans* in the suburban area, *Poecilus cupreus* and *P. cursorius* in the urban area.

BIODIVERSITY OF POLYOMMATINAE SUBFAMILY (LYCAENIDAE) IN SOME PROTECTED AREAS IN IASI COUNTY

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The Lycaenidae family is represented in Romania by 59 species, with the Polyommatinae subfamily comprising most of these species. Many taxa in Polyommatinae are vulnerable or critically endangered due to antropic activities. To asses the biodiversity of species in this subfamily, studies were conducted in five natural protected areas in Iasi county: Fâneţele Seculare de la Valea lui David, Sărăturile de la Valea Ilenei, Pădurea Uricani, Pădurea

Dobrovăţ and Poiana cu Schit. A total of 13 species were recorded in these areas. Our paper presents the list of these species, along with morphological descriptions for each taxa.

RESEARCH REGARDING THE ICHTHYOFAUNA IN THE UPPER AND MIDDLE BASIN OF RIVER TARNAVA MARE

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The study was carried out in the upper and middle basin of the River Tarnava Mare, on the main course of the river and on some of its tributaries over the year 2009. The aim of the study was to assess the actual state of fish communities in the middle basin of Tarnava Mare, and also to highlight significant changes in fish communities. The biological material was sampled by electrofishing from 23 sampling sites. Over the year 2009, 18 fish species were found, with an amount of 3012 individuals and 3621.3 g. One of the 18 fish species is non-native and 17 are native species. It was noticed the lack of a number of 4 species of the 20 found by Banarescu in the area where the study was carried out in 2009. On the other hand, over the year 2009, three other fish species were found in addition to the situation recorded by Banarescu in 1964, respectively *Rhodeus amarus, Romanogobio vladykovi,* and *Pseudorasbora parva.* Based on the ecological indices, three fish zones were found in the upper and middle basin of the River Tarnava Mare: brown trout zone, mediterranean barbel zone and chub zone. Unlike the situation in the past, the fish zones are changed. Thus, the chub zone has extended over the common nase zone which was replaced by the first. Changes in the composition of fish communities are due to the extension of the spreading area of some of the most resistant species. In the same time, some of the most sensitive fish species have special ecological requirements and a more limited area of distribution. Undoubtedly, some of these changes are also due to the increasing of the human impact. However, the fish populations still have a good self-support capacity.

THE USE OF PLAYBACK METHOD FOR ESTIMATIONS ON BREEDING DENSITIES OF TAWNY OWL (*STRIX ALUCO*) IN FORESTS OF IAŞI COUNTY

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Owls (Strigiformes, Aves) have a criptic behaviour, which makes their study relatively difficult. In the case of Tawny Owl (*Strix aluco*), we used playback method, which consists in the randomly selected stations along a transect. The stations are positionated at 750 m distance one of each other. The sound of the species is played loudly for five minutes in each station. Than we wait for the teritorial individuals to answer, and the position of each individual is recorded. The lack of studies on this species in the Moldova Region convinced us to study the territorial activity of Tawny Owl in two large forest bodies from the region: Bârnova and Mădârjac Forests, both Natura 2000 areas. The study was done monthly, during one year, in the period of november 2010 – november 2011. The observations were made in 32 stations, covering various types of forest habitats. In March, July August and September it was recorded

the maximum response activity from the species. But, we consider that the high number of individuals that responded in the period July – September is influenced by the fledged chicks that were present in the parents teritory. To evoid overestimations of our target species number we recommend to use the playback method only during March–April, when the pairs manifest a maximum territorial activity. The Tawny Owl density, in Bârnova Forest was 0,42 pairs/square km and in Mădârjac Forest was 0,56 pairs / square km.

THE FALCONS DISTRIBUTION FROM MOLDOVA REGION IN BREEDING AND WINTERING PERIODS

CONSTANTIN ION[1], EMANUEL ȘTEFAN BALTAG[1], VLAD AMARGHIOALEI[1], LUCIAN EUGEN BOLBOACĂ[1], CRISTIAN STOLERIU[2]

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The falcons represent a group of birds of prey, of which European population shows a dramatic decline. These birds are threatened by: agricultural intensification, habitat loss, a decline in populations of small mammal prey and the use of organochloride pesticides. The breeding and wintering of falcons populations were evaluated in the interval of 2010 – 2012 using observation from fixed points in summer and transect method in winter. The use of traditional agricultural techniques and a low human impact in the studied region are favorable for the presence of large populations of falcons. The number of breeding falcon populations is relatively high. The Kestrel and Hobby populations show a uniform distribution. The conservation target species – the Red Footed Falcon show an isolated distribution. Four falcon species were identified in the winter period: Kestrel, Peregrine Falcon, Hobby and Merlin. The Saker falcon has an uncertain status and was observed two times in May-July period of 2011. Our results could be used for the improvement of management plans in ”Natura 2000” sites or for animal conservation politics in agriculture.

MONITORING BIRD COLONIES IN THE CENTRAL DANUBE DELTA ROMANIA

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The present study was carried out throughout 2011 and 2012, when we monitored bird colonies in the central area of the Danube Delta. Here we report the results, which are meant to add to the investigations made by other ornithologists between 1959 – 1995 and 2001 – 2002. We aimed to perform a quantitative and qualitative analysis of the bird colonies from an area of ca 5,000 ha of these birds' habitats, as well as to estimate the human impact on bird life during the nesting season. We identified mainly mixed colonies of *Phalacrocorax carbo*, *Phalacrocorax pygmeus*, *Ardea cinerea*, *Ardea purpurea*, *Ardeola ralloides*, *Egretta garzetta*, *Casmerodius albus*, *Nycticorax nycticorax*, *Platalea leucorodia*, *Plegadis falcinellus*, found in the accacia trees along channels and lakes, as well as colonies of *Chlidonias hybridus*, *Chlidonias niger*, *Chidonias leucopterus*, in association with species of *Podiceps cristatus*, *Podiceps grisegena*, *Podiceps nigricollis*, *Larus ridibundus* found on the water surface. Also, we identified colonies of *Corvus frugilegus* along the channels, in association with a sparse number of *Falco tinnunculus* and *Falco vespertinus*.

SECTION OF
PLANT BIOLOGY

ORAL PRESENTATIONS
Hall B467: 14^{00} 16^{30}; 17^{00} - 18^{30}

MODERATORS:
Prof. univ. dr. Constantin TOMA, Corresponding Member of the Romanian Academy
Conf. univ. dr. Lăcrămioara IVĂNESCU
Lect. univ. dr. Ciprian MÂNZU

DATA ON THE IN VITRO RESPONSE OF *VACCINIUM CORYMBOSUM*

DANIELA NICUŢĂ[1], DIANA-ELENA MAFTEI[1], GOGU GHIORGHIŢĂ[2]
[1]University Vasile Alecsandri of Bacău, Departament of Biology, Ecology and Protection Enviromental
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Vaccinium corymbosum is a large - bush species of cranberry that is cultivated for its big fruits, very rich in vitamins. Due to its beneficial properties known for centuries, the rapid multiplication of this species is an important goal to achieve. In view of initiating the *in vitro* culture, several shoots originating from Maramureş County were used. The explants were represented by shoot apices, nodes and leaf fragments, and they were disinfested and inoculated *in vitro*. Their morphogenetic response was tested on 11 nutritive variants of modified WPM culture medium, enriched with varied concentrations of auxins and cytokinins. Among the tested cytokinins, it was noticed that the presence of zeatin (single or combined with other growth regulators) led to the growth of new shoots by direct or indirect organogenesis. The best morphogenetic response of the shoot apices and nodes was observed on the A1 variant – culture medium supplemented with 3 mg/l zeatin, that provided highly regenerative callus. The medium variants A6 (3 mg/l zeatin + 0,5 mg/l IBA) and A8 (2 mg/l zeatin + 1mg/l BAP) displayed the growth of new shoots by direct organogenesis, still the production efficiency was more reduced compared to A1. Secondary shoots were provided by the basal nodes of the *in vitro* - regenerated shoots. The inoculated leaf explants generated highly proliferative coarse callus, green-colored and non-regenerative. The rhyzogenesis was only present on the medium variants A1, A6 and WPM enriched with 1.5 mg/l IBA.

VARIATIONS OF SOME PHYSIOLOGICAL PROCESSES AT FOUR APPLE VARIETIES CULTIVATED IN AN ORCHARD FROM MOLDAVIA

DOINA ATOFANI[1], ANCA ANDRO[1], IRINA BOZ[1], CARMEN LAMBAN[4], LILIANE MEGUEKAM TEKAM[2], BOGDAN MANEA[3], MARIA-MAGDALENA ZAMFIRACHE[1]
[1]Alexandru Ioan Cuza University, Faculty of Biology, Iaşi, Romania
[2]Yaoundé I University – Cameroon
[3]S.C. "Mărul de aur" S.R.L.
[4]SCCD Miroslava

The paper presents the variations of some physiological processes at four apple varieties: Jonathan, Mutsu, Prima and Wagner cultivated in the orchard "Mărul de aur", Vaslui county. The investigations were determined in the phase of fruit ripening maturation, 2011. For the investigations from the leaf surface, were used leaves from two different sides of the trees: east and west. For the physiological processes it was used Lci Portable Photosynthesis System (ADC BioScientific Ltd, Hoddesdon, UK). The physiological processes investigated were: photosynthesis, transpiration and respiration process. The ecological factors, temperature and humidity were registered with the portable thermo-hygrometer TESTO 675. The final results indicate functional differences specific for every variety, for the geographical exposition of the apple trees taking into study. Also, the ecological factors can have an influence in the physiological processes.

MITIGATION OF SALT STRESS-INDUCED INHIBITION OF *PLANTAGO CRASSIFOLIA* REPRODUCTIVE DEVELOPMENT BY SUPPLEMENTAL CALCIUM AND MAGNESIUM

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The effect of supplemental calcium and magnesium in mitigation of salt stress was investigated in *Plantago crassifolia* Forssk. (Plantaginaceae) during reproductive development. Five salt treatments including NaCl, $MgCl_2$ and $CaCl_2$ were applied to plants and results compared with a control series. Dry and fresh weights, number of flowering plants, number of spikes per each treatment and per plant have been recorded. The length of floral scapes and spikes, the number and weight of seeds per spikes, germination capacity and calcium and magnesium accumulation were registered. The possible role of calcium and magnesium in salt stress alleviation has been questioned. Flowering was found to be more responsive to sodium chloride treatment; when applied in mixture with calcium and magnesium better responses have been observed in the terms of produced number of spikes. Supported by Romanian POSDRU/89/1.5/S/49944 project „Developing the innovation capacity and improving the impact of research through post-doctoral programmes".

PHYSIOLOGICAL RESEARCH ON SOME SPECIES OF THE GENUS *PLANTAGO* L.

MIHAELA AURELIA IVAN[1], MARIA-MAGDALENA ZAMFIRACHE[1], MARIUS NICUŞOR GRIGORE[1], DOINA ATOFANI[1]
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Plantago genus comprises 35 species, found in European area; in Romania vegetate 17 species, all of them spontaneous. Three species (*P. major* L., *P. media* L. and *P. lanceolata* L.) are cultivated for their medicinal properties, recognized both in modern, as well in traditional medicine. Due to their similar chemical composition, these three species play mostly multiple and convergent pharmacological functions. The present paper aims to study physiological comparative aspects regarding *P. lanceolata* L., *P. coronopus* L. and *P. maritima* L. from

Dobrogea, in order to establish their value as indicator species for saline environments. The degree of hydration in foliar tissues has been gravimetrically determined, and chlorophyll and carotenoids pigments determined by spectrophotometric assay. For the analysis of functional parameters, Lci Portable System has been used, and results reported to the degree of sun–exposure of leaves (Q leaf). In the same time, the ambiental temperature and humidity were recorded, using a portable termohygrometer Testo 625. Statistical analysis of results has been conducted, using calculation of correlations. The comparative analysis of biochemical and functional parameters shows the existence of positive correlations, suggesting that these parameters are closely linked.

INONOTUS TAMARICIS IN ROMANIA

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Inonotus tamaricis (Pat.) Maire is a lignicolous basidiomycete that grows only on *Tamarix* species (on both living and dead plants). So far, this species has been reported from Europe, North Africa, and Asia. Most of the chorology data published until now has come from countries bordering the Mediterranean and Black Seas. In Romania, *Inonotus tamaricis* was found on living *Tamarix tetrandra* in Constanța City, in June 2012. A description and colour photos of collected basidiomata are provided. Analyzed specimens are deposited in the Herbarium of Alexandru Ioan Cuza University, Faculty of Biology, Iaşi, Romania (I).

TAXA OF LOWER RANK (VARIETIES AND FORMS) IDENTIFIED IN ROMANIAN BRYOFLORA

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The paper includes taxa of lower rank (varieties and forms) of liverworts and mosses of Romania's territory, distributed in provinces. This work is necessary for bryologists to get to know better the Romanian bryoflora.

CONTRIBUTIONS AT THE QUANTITATIVE AND QUALITATIVE GROWTH OF WOOD VEGETATIONS IN MUSEUM COMPLEX OF NATURAL SCIENCES (CMSN) PARK

COSTEL PASCA[1], VERONICA ANTONE[1]
[1]Museum Complex of Natural Sciences of Constanţa, Romania

Between 2008-2012 at CMSN were performed many works in order to transform the 5,2 H of green space in a dendrological park. This paper presents the existing and the newly introduced species of trees and shrubs. All the species are presented from a quantitative and qualitative point of view and thier are localized on a map. It is highlighted the impact of reorganization works of the species.

THE VALUE OF ENDANGERED SPECIES: *CARPINUS ORIENTALIS* MILL. FOR THE IMPORTANCE OF BIOLOGICAL DIVERSITY OF REPUBLIC MOLDOVA

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A species is endangered when it is threatened with extinction. Today most species of plants and animals become extinct because of habitat destruction, deforestation, introduction of non-native organisms, and direct killing.

The loss of a single species can set off a chain reaction affecting many other species. Namely assessing the ecological status of these endangered species is particularly important as indicators of environmental quality. Species *Carpinus orientalis* Mill. occupies a limited area in the Republic of Moldova and on distribution north eastern area limit. It grows in only one place near Zlot station. The species has been included in the Red List and Read Book as endangered species, and has a special protection status within Carbuna Landscape Reserve. Monitoring of natural populations of *C. orientalis* Mill. was conducted from 2004 till 2009. Case study is based on current spatial distribution of *C. orientalis* Mill., it can be concluded that the species is represented by one small fragmented population, that occupy surface 3 km^2. Despite measures to protect species habitat is on decline. Is necessary to apply effective monitoring and assessing the state of individuals and populations of rare plant species, containing both qualitative and that quantitative traits indicated deviations from the norm. Experts have repeatedly proposed a general standard strategy for the preservation of rare plant species that comprises biological, ecological, and legal elements. In order to stop the degradation process of the population it is required to adopt a special *ex situ* and *in situ* conservation strategy. In addition, it is necessary to change the protection status of the species from *endangered* to *critically endangered* as well as revise the status of Carbuna Landscape Reserve.

COMMUNITY INTEREST HABITATS WITH *MYRICARIA GERMANICA* OF THE VÂNĂTORI NEAMŢ NATURAL PARK

OANA ZAMFIRESCU[1], CIPRIAN MÂNZU[1], SEBASTIAN CĂTĂNOIU[2], IULIAN GHERGHEL[3], RĂZVAN DEJU[2]
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[3]Department of Zoology, Oklahoma State University, Stillwater, OK, USA.

The habitats with *Myricaria germanica* have a high conservation value given they are classified in the annexe 1 of the Council Directive 94/43 EEC as "Alpine rivers and their ligneous vegetation with *Myricaria germanica*" (code 3230). They are also listed in EUNIS (F9.111), CORINE (44.111) and Emerald (144). The characteristic association is Salici purpureae-Myricarietum Moor 1958. In the study area, these plant communities are relatively widespread in valleys. The habitat is optimal when the vegetation cover of *Myricaria germanica* and *Salix* species is at least 50%. On the other hand, habitat alteration is signalled by the presence of certain species like *Juncus effusus*, *Cirsium arvense* or *Urtica dioica* whose cover value exceeds 10% of the total community cover. The management measures that may favour this type of habitat should include grazing ban (leads to ruderalisation and shift towards

degraded meadows with weeds replacing characteristic species) and restriction of interventions in the natural dynamics of waters (gravel harvesting and river deviation).

CONSIDERATIONS ON THE CLASS LEMNETEA IN ROMANIA

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The class Lemnetea comprises aquatic phytocoenoses of small, non-rooted plants that are often moved by wind or currents. These plant communities are free, often surfaced and seldom submerged, inhabiting stagnant waters (lakes, ponds, separated meanders etc.) or slow rivers, which are relatively rich in nutritive substances. The communities consist of a small number of species, with low coenotic affinity, and display a simple phytocoenotic structure with one or two layers. In this review, we considered the class to be represented only by the order Lemnetalia minoris, in which we also included the communities with *Hydrocharis morsus-ranae*, in accordance with recent opinions. The order Lemnetalia groups aquatic communities consisting of floating or submerged species of the families Lemnaceaea, Salviniaceae, Hydrocharitaceae, and Azollaceae, that live in waters with variable content of minerals and where there is no competition with other phytocoenoses. Our observations showed that in waters with a high mineral content thrive the communities with species of *Lemna* and *Spirodela*, whereas in environments with a low mineral content dominate communities with *Riccia* and *Ricciocarpus*. Regarding the classification of the associations, we have chosen to group them into the following alliances: Lemnion minoris, Lemnion trisulcae, Lemno-Salvinion natantis, Lemno-Hydrocharition morsus-ranae, and Ceratophyllion.

THE SCREENING OF SOME SPONTANEOUS LIGNICOLOUS MACROMYCETES SPECIES

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50 species of lignicolous macromycetes from 14 taxonomic families and 5 orders, Class Agaricomycetes, Phylum Basidiomycota, have been analyzed. The cultural characteristics of these isolates had been observed, some of them being little studied till now. The dikaryotic mycelium from the trama of the sporoms was used for the isolation purpose. In order to analyze the cultural characteristics, the fungal isolates were cultured onto malt extract-agar media (malt extract 20g l^{-1}) and incubated at 25 °C, in the dark, for 6 weeks. The cultures were observed directly and using a Nikon stereomicroscope in order to measure the growth rhythm and to observe the changes of the colonies: edge, surface, reverse, shape, color, smell, presence or absence of the exudates. After 6 weeks from the inoculation, there have been made microscope slides using hyphae from the aerial or submerged mycelium and from the advancing zone. Water, lactophenol, KOH and Meltzer's reagent were used for the preparations of the slides. We investigated the types of hyphae, the color and the structure of the mycelium mono-, di- and trimitic. We also noted the presence of particular elements: cuticle, chlamydospors, arthrospores, conidia, gloeocystidia, cystidia and basidia. During investigations, we have established and recommended the cheapest and feasible nutritive media. We remarked that the analyzed species present characteristics that are commune to families and genera but also significant differences between them.

ATMOSPHERIC POLLUTANTS IMPACT ON THE LICHENIZED FUNGI POPULATIONS OF *XANTHORIA PARIETINA* (L.) BELTR. AND *PHAEOPHYSCIA ORBICULARIS* (NECK.) MOBERG (ASCOMYCOTA)

DIANA MIHAELA PINDARU[1,2], CĂTĂLIN TĂNASE[1], CECILIA ARSENE[2], ROMEO IULIAN OLARIU[2]

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Lichenized fungi represent indispensable instruments in the monitoring process of air pollution mainly due to their characteristics: they lack of a true root system and a well developed persistent cuticle, epidermis as well, and they do not change their morphology in different seasons. Quantitative measurements of chemical composition, in terms of water-soluble cationic species, in *Xanthoria parietina* and *Phaeophyscia orbicularis* lichenized fungi populations, are used in the present work to obtain an indication of their behavior under the action of atmospheric pollutants. Samples of *Xanthoria parietina* and *Phaeophyscia orbicularis*, collected from May to December 2011 from Tudor Vladimirescu, Podul Ros and Bucium locations, were analyzed by ion chromatography in order to determine cationic species as Na^+, NH_4^+, K^+, Ca^{2+} and Mg^{2+}. The variation observed in the distribution of the cationic species concentration is probably due to alternation of wet and dry periods or preponderant influence of anthropogenic factor. By applying multiple linear regression analyses process, we obtained a very good correlation for K^+/Na^+ and K^+/Mg^{2+} pairs. These observations associated with information from the literature allow as to assume that the above mentioned species are involved at cellular mechanism level. Morphological characteristics observed in *Xanthoria parietina* species revealed the presence of vegetative cells of green algae *Trebouxia*, highlighting a central single chloroplast. After conducting cross sections in the analysed lichenized fungi, narrow-clave asci with ascospori hyaline, filamentous hyphae at the periphery of clusters of cortex and areas in the central part microaerobic conglutinate, were observed.

POSTERS
Central hall, 1st floor: $11^{00} – 11^{30}$; 16^{30} - 17^{00}

GLANDULAR AND NON GLANDULAR TRICHOMES FROM *PHLOMIS PUNGENS* WILLD. VAR. *PUNGENS* LEAVES: LIGHT AND SCANNING ELECTRON MICROSCOPY AND HISTOCHEMISTRY OF THE SECRETORY PRODUCTS

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Phlomis pungens Willd. var. *pungens* is a species used in traditional medicine as stimulants, tonics, diuretics; it have also antimicrobial activity, antitumoral and immune modulation proprieties. Small leaf pieces (from the middle of the stem) were fixed glutaraldehyde, dehydrated in a graded ethanol series and embedded in Epon 812 resin. Semi-thin sections were obtained using glass knifes and a Power-Tome PT-X ultramicrotome. Free hand sections of fresh leaf tissue were stained with traditional reagents: osmium tetroxide for unsaturated lipids; concentrated H2SO4 for sesquiterpenes; ferric chloride for polyphenols, Nile blue for total lipids, Sudan III and glacial acetic acid and Nile blue for essential oils, ruthenium red for carbohydrates other than cellulose. For scanning electron microscopy

investigations the material was critical point dried with CO2, sputter-coated with a thin layer of gold and, finally, examined in a scanning electron microscopy (Tescan Vega II SBH). The aim of this paper was to study, using light and scanning electron microscopy, the morphology and secretory products of glandular trichomes of *Phlomis pungens* Willd. var. *pungens*.

COMPARATIVE DATA REGARDING STEM ANATOMY IN FIVE CULTIVARS OF *ARACHIS HYPOGAEA* L. EXPOSED TO SALINITY

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In the present study, the stem anatomy of five cultivars of *Arachis hypogaea* L. (Fabaceae) was investigated, in order to establish the possible correlations between structure, stem diameters and salinity influence. All cultivars (some of them assumed to be resistant, and others – sensitive to salinity) have been subjected to different levels of salinity, as compared to non salt - treated individuals. The number of vascular bundles, the width of cortex and pith were carefully analyzed on cross sections. The disintegration of pith in three cultivars exposed to salinity, comparatively to control plants – is critically questioned.

SOME HISTO-ANATOMICAL AND MICROMORPHOLOGICAL FEATURES OF EIGHT *SALVIA* TAXA LEAVES

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Lamiaceae is one of the richest family in aromatic herbs and medicinal plant species, which are of great economic importance. Many of its representatives produce essential oils, secreted by glandular hairs distributed on all aerial vegetative and some reproductive plant organs. These structures have been investigated from structural, ultrastructural, biochemical and taxonomical viewpoints, that increased research attention being primarily due to its biological substances assets in their product secretion. The present paper is focused by secretory hairs on leaves of *Salvia* investigated taxa, distribution and their structural details. Also, are pointed out the histo-anatomical characteristics of leaf petiole and lamina, used to differentiate more easily the species of the same genus under the circumstances when macroscopic observation can not clarify this. Other important issues that we tried to highlight regarding the leaf micromorphology, with design surface and the other epidermal formations, such as the varied types of tector, non-glandular hairs and stomata typology, with their arrangement. For our purpose classical and modern methods of investigation were used: the classical method for histo-anatomical analysis and the SEM investigation technique for micromorphological ones. Plant material consists by mature leaves belong to eight *Salvia* taxa, widespread in Romanian flora.

THE INFLUENCE OF HUMIC SUBSTANCES (LG) ON THE SPECTRUM OF POLYPEPTIDES IN THE *GLYCINE MAX* L. VARIETIES WITH CONTRASTING DROUGH RESISTANCE

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In order to identify the particularities of plant response to humic compounds, the polypeptide spectrum of soybean proteins extracted from seeds of two varieties with different drought resistant was analyzed. The study used contrasting genotypes with different resistance to hydric deficit: Horboveanca - average strength and S4-04 - resistant to drought. Protein's analysis was performed by SDS-electrophoresis. Polypeptid spectra revealed the presence of common bands to both varieties, as well as the presence of specific polypeptides for each of the genotypes. The polypeptides with Mr 106, 104, 60, 43 kDa was identified in resistant genotype and was absent in the sensitive one, the polypeptide with Mr 32 kDa was present only in Horboveanca genotype. Humic substance administration conditioned the increase or decrease of the content of polypeptides that have an important role in plant adaptation. Treatment with 0.5% LG led to the expression of the Mr 104 kDa band, the darkening of the polypeptide with Mr 20 kDa band and the reduction of the band with Mr 29 kDa in variety Horboveanca. Variety S4-04 responded to the treatment by increasing the bands with Mr 79, 73, 53 and 35 kDa and decreasing the 22 kDa band content.

THE INFLUENCE OF FENOLIC SUBSTANCE (OC) ON SEEDS WATER ABSORBTION CAPACITY OF DIFERENT SOYA GENOTIPES

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Fenolic compounds are ubiquitous distributed in nature, beeing involved in various metabolic processes, including plant water absorbtion. Bioassays results from different plant species have shown that phenols have a decisive role in seed germination. Varieties of soybeans: Enigma, Horboveanca, Zodiac, S4-04 and Licurici Seeds were treated with 0.05% OC solution at a temperature of 25^0C. The average time for complete hydration of seeds was 24 hours. Amount of solution absorbed by the seeds was determined by weighing after 1, 2, 4, 6 and 24 hours. The higher rate of water absorbion in control samples was at the 2-4th hour from seeds soaking. In the first 6 hours varieties with average drought resistance – Enigma and Horboveanca, had the highest water absorbtion rate of soaking. The high droght resistant varieties - Zodiak and S4–O4 had a medium water absorbion capacity and the lowest value of the studied parameter was attested in droght sensitive variety – Licurici. Phenolic compound treatament (0,05% OC) had been accelerated the solvent absorption in seeds, reaching the appropriate level one hour earlier than in the control sample, which demonstrates the involvement of these compounds in increasing membrane permeability. Note, that resistant variety S4-O4 has shown substantially increased absorptive capacity, solvent consumption being 2-3 times higher compared with other genotypes and control.

PHYSIOLOGICAL CHANGES DURING ON PHENOPHASE IN FOLIAR DEVICE OF NINE SPECIES OF *SALVIA* GENUS

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This study assesses how different phases growth underlie seasonal change of physiological foliar indices. The investigations were carried out during one cycle of vegetation, for 9 *Salvia* species: *S. aethiopis* L., *S. austriaca* Jacq., *S. glutinosa* L., *S. nemorosa* L., *S. nutans* L., *S. officinalis* L., *S. pratensis* L., *S. ringens* Sibth. & Sm. and *S. verticillata* L. There were registered the intensity of photosynthesis, the respiration and foliar transpiration processes in the major phenophases of the plants, observing also, the foliar biochemical changes: of assimilating pigments and the leaf water status. For recording the intensity of photosynthesis, respiration and transpiration of the foliar processes we used the LCi Portable Photosynthesis System device for in vivo determinations. Simultaneously, the temperature and humidity values near the investigated leaves were taken, using portable thermo-hygrometer TESTO 625. In different phenophases, physio-chemical parameters of taxa leaves have shown more or less extensive variations, each investigated phytoindivid revealing their adaptation response at the ecotope supply, according to Whittaker et al., 1973. The photosynthesis dynamics depends on the quality and quantities of incident light, and the level of chlorophyll the content of pigments in the assimilating tissues. Direct relationship exists between dry matter content and physiological process of carbon assimilation, a positive correlation being also observed between respiration and transpiration foliar processes.

PHYSIOLOGICAL ASPECTS IN TWO *ANGELICA* L. TAXA (APIACEAE)

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Two of the species of the species of the *Angelica* L. genus present in Romania posses therapeutic qualities. *A. archangelica* is listed in several pharmacopoeias, while *A. sylvestris* is used in folk therapies, with in vitro research confirming its values. Although numerous compounds have been isolated from the two species and many bioactivities have been ascribed to them, physiological attributes of the above taxa are known to a much lesser extent. The current paper presents measurements of photosynthesis, respiration and transpiration at different growth stages for *A. archangelica* and *A. sylvestris*. In the same time, values for chlorophyll and carotenoid pigments content and moisture are given for each growth stage considered.

FOLIAR RESPONSE REACTIONS INDUCED BY ATMOSPHERIC POLLUTANTS ON THE *TILIA TOMENTOSA* L. SPECIES FROM IAŞI CITY AREA

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In this paper we present the foliar response reactions, induced by atmospheric pollutants on the *Tilia tomentosa* L. species situated around Iaşi city`s air quality monitoring stations.

Pollutants monitored by the five stations are represented by gaseous (sulfur dioxide, carbon dioxide, nitrogen dioxide, ozone), and solid pollutants (dust prone to sedimentation). Our investigations focused on phenological and morphological observations and tracked the dynamic of physiological and biochemical changes induced on leaves by atmospheric pollutants. As working methods were used: AM300 foliar scanner, LCI- "in vivo" determination portable device, gravimetric method for dry substance and spectrophotometric method for leaf pigments. We want to emphasize that the large amount of dry leaves is not always related to necrotic leaf surface. It was found that the amount of chlorophyll "a" and "b" and the intensity of photosynthesis aren`t always correlated.

RESEARCHES ON PTERIDOPHYTES FROM VÂLSAN VALLEY PROTECTED AREA (ARGEŞ COUNTY, ROMANIA)

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Long-term, observations of populations of pteridophytes can reveal how they respond to abiotic and biotic changes in their environment. The research was done in the Vâlsan Valley, Argeş county, in The Natural Reserve Vâlsan Valley and The Protected Natural Area of Community Interest Vâlsan Valley, and assumed identify the populations of the pteridophytes in the protected area, in order to make up a database necessary for monitoring their long-term and for establish conservation strategies in the area. In the researched area have been identified 50 sites with pteridophytes. For each site were determined the pteridophytes species, the abundance of each species and the in situ reproduction. In the Vâlsan Valley protected areas were identified 42,85 % from the Romanian pteridophytes species (without extinct or uncertain species). 36,66% of the ferns species identified are considered sporadic în Romania flora. In situ, at most of the pteridophytes were identified different stages of reproduction: gametophytes, sporelings and juveniles.

TAXONOMIC AND CHOROLOGIC REVISION OF THE GENUS *ASTRAGALUS* L. IN THE HERBARIUM OF "ALEXANDRU IOAN CUZA" UNIVERSITY OF IAŞI

IRINA IRIMIA
Alexandru Ioan Cuza University, Faculty of Biology, Iaşi, Romania

The revision of specimens of the genus *Astragalus* L. in the herbarium of "Al. I. Cuza" University of Iaşi (**I**) was realized on the basis of 737 sheets of herbarium from different regions of Romania. All specimens of *Astragalus* in **I**, were reviewed and redeterminated. The total number of taxa is 26. These specimens were collected in the period 1894-2008, aiming to discover dynamic of specimens' entry into the collection. These data were used for the realization of maps of the partial distribution of taxa in Romania. The processed material was inserted into the database herbarium.

DENDROCHRONOLOGICAL RESEARCH AND QUANTIFICATION OF CLIMATE-TREE RELATIONS ON SPRUCE AND EUROPEAN LARCH IN CEAHLAU MOUNTAIN AREA, ROMANIA

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This study is located in three neighboring mountain sites of Ceahlau mountain area. Here, were made three dendrochronological series, two series on spruce (*Picea abies* Mill.) and one on european larch (*Larix decidua* Mill.). The studies related a tight connection and a significantly correlation between radial growth and studied climatic parameters. The spruce from Ceahlau responds significantly and positively to average and low temperatures. The european larch from Ceahlau area responds significantly and positively to maximum temperatures of August. Regarding the vegetation conditions for the analyzed species from Ceahlau mountain area we may say that all the species considered in this study are vegetating at the limit between optimal and suboptimal area.

PHYTODIVERSITY IN ANTHROPOGENIC ENVIRONMENTS DURING NEO-ENEOLITHIC IN EAST ROMANIA

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The Neolithic period marks an important transition in the ways that humans lived, the most important aspect consisting in the introduction of agriculture as main subsistence occupation. From this point of view, this is the time when the human activities start affecting the ecology of their environs, but environmental conditions also keep a significant role in modeling the composition, structure and diversity of the flora. Our research establishes a link between human presence during Neo-Eneolithic (6600 – 3700/3800 BC) and their impact on the surrounding vegetation. The pollen record provides strong evidence for cereal cultivation, while specific taxa for grazing were found in the presence of spores of coprophilous fungi. Our palynological data from several Neolithic sites show some close links between the occurrence of pollen of *Cerealia*-type and apophytes (herbaceous species linked to human occupation or disturbance). The occurrence of *Cerealia*-type pollen alone cannot be taken as proof for agriculture, but the presence of apophytes supports this interpretation. A list of the identified taxa is presented in this study.

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SECTION OF
MOLECULAR INTERACTIONS IN THE LIVING WORLD

ORAL PRESENTATIONS
Hall B 339: 14^{00} - 16^{30}; 17^{00} - 18^{30}

MODERATORS:
Prof. univ. dr. Vlad ARTENIE
Prof. univ. dr. Liliana FOIA
Conf. univ. dr. Mihai LEȘANU

EFFECT OF TREATMENT WITH DIFFERENT DOSES OF SOME NEW POLYPHENOLIC EXTRACTS OBTAINED FROM *HELLEBORUS PURPURASCENS* AND *GERANIUM ROBERTIANUM* UPON VIABILITY AND APOPTOTIC PROCESS OF HELA CANCEROUS CELLS

DANIELA GHERGHEL[1], COSMIN TEODOR MIHAI[2], GABRIELA VOCHIȚA[1], PINCU ROTINBERG[1], GABRIELA PĂUN[3], GABRIEL RADU LUCIAN[3]
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The in vitro action of four final polyphenolic biopreparations, concentrate and permeate fractions of some primary aqueous extracts ultrafiltered on permselective materials, obtained from *Helleborus purpurascens* and *Geranium robertianum*, in different doses (5, 15 and 25 μg/mL) upon cell viability and apoptosis was studied. The biological material was represented by HeLa neoplastic cell cultures, derived from a human cervix epitheloid carcinoma. Investigation of apoptosis and cell viability was based on flowcytometry method with Annexin V-FITC and 7-AAD. Is was found a significant decrease, correlated with dose, of cell viability under the action of Helleborus purpurascens bioextracts, – hence a pronounced cytotoxic impact – while the bioproducts obtained from Geranium robertianum caused a moderate reduction in cell viability. It appears that the concentrates of aqueous ultrafiltered extracts are more active than permeate ones. The impact on apoptosis process, for all biocompounds, is minor, cytotoxicity recorded mostly due to direct action, unmediated by the occurrence of the apoptosis. Our results argue the existence of a dose-effect relationship and create premise to optimization of the in vitro antitumor efficiency by limited manipulation of treatment doses, allowing inclusion of these bioextracts in further in vitro research regarding molecular support of their cytostatic action.

QUANTIFICATION OF POLYPHENOLS AND THE BIOLOGICAL ACTIVITY OF CHAMOMILE EXTRACTS FROM ROMANIA

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Today, chamomile popularity has not diminished, being used both external and internal. The number of[1] drugs containing extracts of chamomile has increased along with the widening knowledge of chemical composition, pharmacological, botanical and agro-technical research of nature. Chamomile pharmaceutical crops are obtained only from controlled cultures, which use a few recognized clones because of the rich content in pharmacologically active principles. This is why we tried to correlate the quantity of polyphenol derivatives with the antioxidant activity of tinctures and infusions. We selected 9 samples of chamomile tea offered in 2005 in Romanian pharmacies, compared with a sample of Chamomillae flos chosen as a witness, from Sidroga (Germany). The qualitative and quantitative analysis targeted the polyphenolic fraction. To assess the chemistry changes influence of the chamomile samples on the biological activity, we tested the antioxidant capacity by two methods (scavenger ability against DPPH radicals, chelating ability of ferrous ion). In all types of extracts 3 polyphenolcarboxylic acids and 5 flavonoids (apigenin, luteolin and its glycosides, rutoside) were identified. The intensity of scavenger seems to be higher for infusions, whereas the ferrous ion chelating ability is higher for tinctures and consistent for both forms of extractive content in polyphenols.

A PRELIMINARY STUDY ON PHYLOGENY OF WARBLES SPECIES (*SYLVIIDAE*) BASED ON MTDNA SEQUENCES

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The aim of this study is to identify the phylogenetic relations in *Sylviidae* family, by cytochrome b, mitocondrial DNA sequence. For this we used genetical material from eight species of the *Sylviidae* family, and one from the *Emberizidae* family as outgroup. Blood samples were collected and preserved in Queen's Lysis Buffer. The total DNA was isolated and purified using the DNA IQ System protocol (Promega). Genetic analysis was performed in a volume of 25µl using the GoTaq Flexi DNA Polymerase Kit (Promega) on the gene that encodes the cytochrome b using the mtA and mtFr primers and the chromo-helicase DNA gene using the P2 and P8 primers, respectively. The PCR products were separated by agarose gel electrophoresis, purified using the Wizard SV Gel and PCR Clean-Up System (Promega) and direct sequenced using the CEQ 8000 Genetic Analysis System (Beckman-Coulter), Lasergene Core Suite 7.0.0 (DNASTAR), MEGA 5 (Tamura K., 2011). The phylogenetic relationships within *Sylviidae* family show a clear distinction of species components by grouping them into distinct clade in the phylogenetic tree. Based on analysis of mitochondrial genetic markers we can say that *Panurus biarmicus* specie belongs to *Sylvidae* family, in terms of molecular taxonomy.

BISON BONASUS INTERSPECIFIC VARIABILITY IDENTIFICATION USING THE MITOCHONDRIAL *CYTOCHROME B* GENE SEQUENCES

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The aim of this study is to identify the interspecific variability at *Bison bonasus*. Mitochondrial *cytochrome b* gene sequences were used to screen the genetic variability in the European bison population of the Vânători Neamț and Neagra Bucşani National Parks. The sampling process refers to blood samples loaded in Queen's lysis buffer and stored in 98% ethanol. DNA isolation and purification were performed by the phenol:chloroform protocol and DNA was precipited with absolute ethanol stored at -20ºC. The total DNA was resuspended in 40 µl Tris-EDTA and was quantitatively and qualitatively determined by spectrophotometry and electrophoresis in 1% agarose gel stained with ethidium bromide and visualised under UV light. By using the polymerase chain reaction (PCR), performed in a 25 µl reaction volume containing GoTaq Green Master Mix (Promega), direct (mitH2) and (mitL1) revers primers, DNA and nuclease free water, we sequenced the mitochondrial *cytB* gene in 12 individuals. The squencing process was performed using the BeckmanCoulter CEQ 8000 Genetic Analysis System. For the alignment of the 12 sequences were used Lasergene and MEGA5 software witch shows the existence of 8 haplotypes.

EVALUATION OF EXTREMELY LOW FREQUENCY ELECTROMAGNETIC EFFECTS ON DNA INTEGRITY IN NORMAL CELLS

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Extremely low frequency electromagnetic fields aren't considered as a real carcinogenic agent despite the fact that some studies have showed impairment of the DNA integrity in different cells lines. The aim of this study was to evaluate the effects of 100 Hz electromagnetic fields in normal Vero cells exposed in vitro, using alkaline COMET assay in order to detect the genotoxicity and to evaluate the differences in effects between the manner of exposure to ELF (continuous or discontinuous). Normal Vero cells were exposed to extremely low frequency electromagnetic fields (100 Hz, 5.5 mT) for 45 minutes and the COMET assay was performed after 48 hours from the treatment. Exposed samples presented an increase in the frequency of the cells with high damaged DNA as compared with non-exposed cells. Quantitative evaluation of the comet assay showed a significantly (<0.001) increase of the tail lengths, of the quantity of DNA in tail and of olive tail moments, respectively. The comparative analysis of the damage extent through comet indices didn't demonstrated significant differences between continuous and discontinuous electromagnetic field. 100 Hz extremely low frequency electromagnetic field had a genotoxic impact upon Vero cells which was non-dependent by the type of electromagnetic field.

THE INTERACTION PATTERN OF ETOPOSIDE WITH VERO CELLS IS INFLUENCED BY LOW FREQUENCY AND INTENSITY ELECTROMAGNETIC FIELD

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Nowadays, is still a debate about the possible effects of electromagnetic fields upon the health and the mechanisms underlying the interaction with the cells. The present study investigates the influence of low intensity and frequency electromagnetic fields on the interaction pattern of the etoposide with Vero cells. In order to identify the possible effects of the low frequency (100 Hz) and intensity (5,5 mT) electromagnetic field (EMF) we used Vero cell line. EMF was applied either continuously (cEMF), or discontinuously (dcEMF, 1 second on, 3 seconds off) for 45 minutes. The etoposide (Etop) was used in a dose of 60 μg/mL. After 24 and 48 hours from the treatment, the cells were subjected to cell cycle analysis by flowcytometry (NIM – DAPI). The pattern of interaction of the Etop with Vero cells was altered by the presence of the electromagnetic field, the % of cells in G2/M phase increasing in treated samples, effect which is maintained at the same rate even after 48 hours. The most active association is that in which dcEMF is applied after 3 hours after Etop.

THE CELL CYCLE PROGRESION IN HELA CELLS TREATED WITH NEW POLYPHENOLS EXTRACTS OBTAINED BY ULTRAFILTRATION FROM *HELEBORUS PURPURASCENS* AND *GERANIUM ROBERTIANUM*

GABRIELA VOCHIȚA[1], COSMIN TEODOR MIHAI[2], DANIELA GHERGHEL[1], PINCU ROTINBERG[1], GABRIELA PĂUN[3], GABRIEL RADU LUCIAN[3]

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Analysis of cell cycle by flow cytometry is an important tool both in fundamental research and also in the biomedical field. Thus, in pharmacology it allows in vitro tests for new drugs, such as antitumoral factors, in order to develop new treatments. In oncology, based on the analysis of DNA content it can be established the degree of ploidy of a cell population. In the present study, we analysed the cell cycle progression of neoplastic HeLa cells treated with some hydrous polyphenolic extracts obtained from roots and rhizomes of *Helleborus purpurascens* and *Geranium robertianum* by ultrafiltration using permselective hollow fiber material with cut-off to 30,000 Da. The concentrate and permeate fractions (5, 15 and 25 μg/mL) were used for the treatment of neoplastic HeLa cell cultures. Cell cycle distribution was assessed by flow cytometry (NIM-DAPI method). After 48 hours, the frequency of cells in G1 and G2 was reduced, correspondingly being registered an increase of frequency of cells in S phase. These changes in cell cycle distribution are probably determined by defective DNA replication resulting in accumulation of large number of the cells with "errors" which are not allowed to pass beyond the S-phase checkpoint.

A STUDY OF SOME HEMATOLOGICAL PARAMETERS IN SUBJECTS WITH MULTIPLE MYELOMA

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Multiple myeloma is a serious hematological neoplasia, located in the bone marrow, and characterized by some specific mechanisms of mieloma clone proliferation in terms of survival and achievement of resistance to conventional treatments. The study material of the present paper consisted of blood harvested samples and their analisis from pacients in different stages of multiple mieloma. This paper aims to bring new elements in understanding the oncochematological pathology and some other disorders which could be associated with multiple myeloma (e.g. hyperglicemia, high blood pressure, and acute and chronic renal insufficiency); it emphasizes the results related to the evolution of the changes in some parameters that have been studied from a hematological point of view in the Laboratory of „Elena Beldiman" Municipal Emergency Hospital from Barlad on 32 pacients diagnosed with multiple myeloma between January 1st, 2001 and December 31st, 2010.

THE RESEARCH STUDY ON SOME HEMATOLOGICAL ASPECTS IN SUBJECTS WITH PLASMOCYTOMA

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The specific mechanisms to proliferate the mieloma plasmocytes are initiated and maintained through signals generated in the frame of a particular tumoral microenvironment, consisting of medullary stroma cells, soluble growth factors, cytokines, and elements of the extracellular matrix. The aim of this paper is represented by the review of the main data from the literature and the systematization of a part of our experimental data related to the changes in variations of some hematological parameters in male and female subjects diagnosed with multiplu myeloma. The investigations from which we obtained the values of some markers that express the change of the normal blood ratio resulted in blood disorders. The analysis results, which were in accordance with those from the literature, show that the changes in the blood markers can occur as a result of the influence of various factors that negatively modify the pacient status. A study on the changes of some hematological parameters was performed on 32 pacients diagnosed with plasmacytoma within the Municipal Emergency Hospital „Elena Beldiman" from Barlad, between January 1st, 2001 and December 31st, 2010.

POSTERS
Central hall, 1st floor: $11^{00} – 11^{30}$; 16^{30} - 17^{00}

CERVICAL NEOPLASIA CASE STUDIES

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Cancer is nowadays one of the most important health problems. In Romania cancer is the second in general morbidity after cardio-vascular diseases, being followed by respiratory

diseases, accidents and trauma. Considering the fact that cancer has an insidious start, a slow irreversible development towards physical and psychic invalidity, and that it affects both the person and the family and society, we can say it is very important to have a study of this illness from the social and medical point of view. The cytological examination offers, apart from the highlighting of the tumour cells, the possibility of assessing the hormonal status, and also of identifying vaginal flora. Cervical cancer is a serious chronic condition, which has great medical and social importance and has a severe evolution when detected in advanced stages.

PREVALENCE OF CERVICAL CANCER IN THE COUNTRYSIDE (THE COUNTY OF IAŞI)

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The present work intends to analyze the epidemiology of cervical cancer on a sample of women from the countryside. The main concern was the early diagnosis through a mass cytological examination. The cytological screening was performed by a team of medical staff from the "Elena Doamna" Iasi Third Clinic of Obstetrics-Gynecology, who went to the countryside in the county of Iaşi and made social inquiries by filling in a prototype file and by performing a local genital examination, harvesting smears for the bacteriological and cytological exam. We identified pre-cancer and cancer status in 5.4% of the cases we analyzed, as follows: L-SIL 3.7%; H-SIL 0.8%; CIN 1.1%. According to the cases studied, the risk factors identified in the social inquiry are: age over 40; a big number of children, precarious social and economical conditions. The high prevalence of infections of the genital tract in the pathogenesis as cervical cancer in the countryside suggests a high degree of sexual promiscuity and the lack of an appropriate hygiene.

GENETIC STUDIES REGARDING THE RECURRENCE OF HUMAN FACIAL CONGENITAL ANOMALIES

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Facial anomalies are the most frequent human congenital malformations and represent a dramatic situation at birth, which involves important functional, aesthetic, psychological and social impairment that motivates the necessity of a thorough genetic study in the view of genetic counselling. We have studied the families of 100 children with facial congenital anomalies, especially syndromic and unsyndromic clefts, born during the years 1995-2005 in Iaşi county. After performing family inquiries, drawing pedigrees and analysing karyotypes, we determined the recurrence risks in accordance with the ethiology: monogenic, chromosomal syndromes or multifactorial inheritance; recurrence risks varied between 2 – 5% for the majority of cases (72%) which corresponds to a small risk degree; only in 28% of cases the risk varied between 6 – 15% which corresponds to a medium risk degree.

ASSESSMENT OF GENETIC STABILITY IN MICROPROPAGATED PLANTS OF SOME ORNAMENTAL STRAWBERRY VARIETIES

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Commercial propagation of strawberry plants based on tissue culture technologies, lies in the production of clonally uniform plants. Since genetic instability and somaclonal variation might occur in some *in vitro* culture conditions, not very well defined, even during micropropagation, the assessment of genetic stability in micropropagated plants is essential before using a new or improved protocol for large scale propagation of a certain plant variety. In order to evaluate the genetic stability and uniformity of ornamental strawberry plants micropropagated by using a new and highly efficient protocol we have developed recently, RAPD markers were used with varieties "Pink Panda" and "Serenata". Micropropagated shoots selected at random from four subcultures onto either Murashige & Skoog or Lee & Fossard media, each of them supplemented with 6-benzylaminopurine (BAP) at 1.0 mg l^{-1}, indolylacetic acid (IAA) at 1.0 mg l^{-1} and gibberellic acid (GA_3) at 0.1mg l^{-1}, were subjected to molecular analysis. Ten deca-nucleotide primers (among 48 tested) were chosen for RAPD analysis, all of them indicating genetic stability for micropropagated plants of the investigated varieties of ornamental strawberry.

INFLUENCE OF NUTRITIVE SUBSTRATE AND PH ON CATALASE AND PEROXIDASE PRODUCTION IN SAPROPHYTIC FUNGUS *RHIZOPUS NIGRICANS*

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Aerobic organisms are vulnerable to action of reactive oxygen species that are very noxious and may be responsible for damage of all cellular constituents. Most organisms have developed defense mechanisms to protect cells from high levels of free radicals. The purpose of this paper is to determine the antioxidant response in fungus *Rhizopus nigricans*, materialized trough enzymatic activity of biochemical markers of oxidative stress – catalase and peroxidase. We followed the influence of culture medium pH and nutrient substrate on development of the two enzymes. Enzymatic assays were performed at intervals of 5, 10 and 15 days, using both fungus mycelium and culture liquid. Fungus development was completely inhibited at pH 2. Catalase and peroxidase production was mostly endocellular because in the culture liquid in most work variants enzymatic assay was not possible and in the remaining work variants were recorded low values for catalase and extremely low, near to zero for peroxidase.

CYTOGENETIC EFFECTS OF NEODYMIUM-IRON-BORON (NDFEB) MAGNETIC FIELDS IN *PHASEOLUS VULGARIS* AND *ZEA MAYS*

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A neodymium magnet (alsoknown as NdFeB, NIB, or Neo magnet), the most widely-used type of rare-earth magnet, is a permanent magnet made from an alloy of neodymium, iron, and boron to form the $Nd_2Fe_{14}B$ tetragonal crystalline structure. Developed in 1982 by General Motors and Sumitomo Special Metals, neodymium magnets are the strongest type of permanent magnet made. Effects induced by these magnets have been studied mainly in the animal kingdom, but only few data indicates the effects of these magnets, especially the cytogenetic effects, on vegetal material. In our paper we present some preliminary results concerning effects of NdFeB magnets on cell division in *Phaseolus vulgaris* and *Zea mays* radicular meristems, according with dose and time of exposure.

IN VITRO MULTIPLICATION OF *LAVANDULA ANGUSTIFOLIA* MILL. AND *MATRICARIA CHAMOMILLA* L.

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The regenerative potential of meristematic explants from *Lavandula angustifolia* Mill**.** and *Matricaria chamomilla* L was evaluated for the establishment of a clonal propagation protocol. Plant regeneration has been achieved from meristem multiplication using shoot tips. The procedure involved shoot tip cultures, followed by rapid shoot multiplication, rooting and finally establishment of plantlets in soil. MS medium has been diversified according to hormonal balance, using either benzylaminopurine or kinetine separately or in combination with indolylacetic acid or naphtalenacetic acid. The agar solidified MS medium containing 1 mg/l benzylaminopurine and 0,1 mg/l indolylacetic acid was optimum for shoot proliferation at. *Lavandula angustifolia* Mill, whereas the MS medium supplemented with 1 mg/l kinetine and 0,1 mg/l naphtalenacetic acid allowed the development of large number of cloned shoots at *Matricaria chamomilla* L. The regeneration of whole plants was obtained in two steps: the shoots were excised and transferred to fresh medium and then rooting of these shoots was achieved on the same medium without growth regulators.

NEODYMIUM-IRON-BORON (NDFEB) MAGNETIC FIELDS INFLUENCE ON SOME PHYSIOLOGICAL AND CYTOGENETIC PARAMETERS IN *ALLIUM CEPA*

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Neodymium magnetic fields action on plant organisms it is of interest to specialists because of their influence on the activity of DNA from the cell nucleus, especially on the conformational aspects of the genome. Due to the application of neodymium magnetic fields treatments were obtained valuable varieties of plants (particularly food such as cereals) with superior productive features, adequate to human needs. The aim of our research has been highlighting the impact of magnetic fields on cellular and genome dynamics in meristems from

irradiated seeds. Our investigations establish the stimulatory effects of neodymium treatments on mitosis (mitotic index values compared to the control) and also detect disturbances in the mitosis process, and at the chromosomal level, disturbances that typically occur after treatment with various chemical agents.

THE INFLUENCE OF SOME FACTORS ON B-1,4-XYLANASE ACTIVITY OF THE FILAMENTOUS FUNGUS *TRICHODERMA REESEI* QM 9414

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The mesophyllic fungus *Trichoderma reesei* (anamorph of *Hypocrea jecorina*) is an important biotechnological tool, known for its ability to secrete large quantities of hydrolytic enzymes. Renewable biomass, such as agricultural and forest wastes are used to produce microbial enzymes in various industrial processes such as food, feed and bioethanol industries. In raw biomass materials, such as wheat straws, barley straws and maize stalks, the main polysaccharide is cellulose which is closely associated with hemicelluloses like xylan, manan and xyloguclan. In consequence, the hydrolysis of these materials requires the concerted action of several enzymes, namely cellulases and xylanases. Endo-xylanase (endo-1,4-β-xylanase, EC 3.2.1.8) is the key enzyme involved in xylan hydrolysis, the main hemicellulosic component of plant cell walls. The metabolic activity and enzyme productivity of *Trichoderma reesei* is influenced by various environmental conditions. In this context, we analysed the effect of pH, cultivation period, the nature of the substrate used and the nitrogen source on enzymatic activity. The maximum xylanase yield was recorded at a initial pH of 4 (116.189 IU/ml) for barley and 5 for wheat (88.578 IU/ml), respectively maize (116.583 IU/ml). The best substrate for endo-xylanase activity was maize stalks (90.446 IU/ml) at a a concentration of 30 g/L.

INTERACTION OF POLY(BETAINES) WITH *ESCHERICHIA COLI*

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Dilute solutions of poly(carboxybetaines) derived from poly(N-vinylimidazole) PNVI, and containing a methylene (B1), ethylene (B2), and propylene (B3) betaine groups, respectively, were analyzed from the physico-chemical point of view to predict their interactions with bacteria cell wall. Static ("batch mode" multi-angle laser light scattering, MALLS) and dynamic light scattering (DLS) methods allowed the determination of some characteristics of macromolecules in solution: weight-average molecular weight M_w, second virial coefficient A_2, Z-averaged root-mean-square radius of gyration R_g and hydrodynamic radius R_h. All parameters vary in accordance with the type of solvent (pure water or 0.5M NaCl aqueous solutions) and show that poly(carboxybetaines) have the most extended conformation in salted solutions proper to interactions with bacterial cell wall. Kirby-Bauer diffusion method was used to test the antibacterial activity for 0.5M NaCl aqueous solutions of poly(carboxybetaines). The *Escherichia coli* (ATCC 25922) cells are sensitive against poly(carboxybetaines) B1 (21.84 mg mL^{-1}) and B3 (28.2 mg mL^{-1}), but resistent to B2. The

absence of antimicrobial activity for the poly(carboxybetaine) B2 could be related to the possibility of compensation of the opposite charges even into the same betaine group by formation of five-member rings. All results reveal that the antibacterial activity depends not only on the chemical nature of bacterial cell wall, but even of the spacer between the charged groups present in these poly(betaine) chains.

TOTAL PHENOLICS AND TOTAL FLAVONOIDS IN SEVERAL ROMANIAN HALOPHYTES SPECIES

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Non-enzymatic antioxidant activity was investigated in 15 Romanian halophytes, belonging to different botanical families and having very different ecological spectra. The higher content of total phenolics and total flavonoids was registered in *Asteraceae* species *(Aster linosyris, Inula britannica* and *Artemisia santonica)*. This is perhaps specific to botanical family rather related to salinity. However, all these species are xero-halophytes and aridity could also play a significant role in plant responses to environmental factors. No pattern was found in *Chenopodiaceae* species regarding the polyphenols biosynthesis; contrarily, the total flavonoids content was lower in all chenopods, comparatively with other species. Supported by Romanian POSDRU/89/1.5/S/49944 project 'Developing the innovation capacity and improving the impact of research through post-doctoral programmes'.

VARIATION OF SOME ORGANIC SUBSTANCES IN *ANGELICA SYLVESTRIS* L. (APIACEAE) AT DIFFERENT GROWTH PHASES

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Angelica sylvestris L. is an apiacean species which has been less studied from a physiological and biochemical point of view than other *Angelica* species in our country. This species posseses some well-established properties in traditional therapies both in our country as well as in other regions of the globe. Some bioactivities have been confirmed by in vitro international studies. The current paper presents the results of the determinations of some organic substances in *Angelica sylvestris* L. The total content of sugars and lipids was established in different developmental stages and in different vegetative and reproductive organs. Both classes of compounds show specific variations according to the analysed organ and growth phase.

THE DAMAGE DEGREE OF ANCIENT DNA OF *SUS SCROFA FERUS* AND *SUS SCROFA DOMESTICUS* REVEALED BY MOLECULAR MARKERS: CYT B GENE

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The domestication process of the pig represents a field of high interest nowadays, employing studies on ancient DNA of both *Sus scrofa ferus* and *Sus scrofa domesticus*. Still, for this purpose, only one molecular marker has been widely used: the D-loop fragment. This study aims to investigate the compatibility of another molecular marker, the cyt b gene, for the ancient DNA sequences required in the study of pig domestication. 29 bone remains have been analyzed: 10 dating from the Cucuteni Culture (Truşeşti and Cucuteni-Cetăţuie archaeologic sites), 15 from the 7th - 3rd century BC (Stânceşti), 2 from the 4th -1st century BC (Greaca) and 2 from the 2nd -3rd century AD (Niculiţel). For all samples DNA was extracted by the same procedure (based on phenol-chloroform), quantized and amplified by PCR, using different sets of primers, to get a maximum length of the DNA fragments for as many samples as possible. While on the samples dating from the 7th century BC until the 3rd century AD could be obtained DNA fragments of 600 or 456 bp in length, on the Neolithic ones we were able to get only 4 DNA fragments of 170 bp in length, being demonstrated this way the reverse proportionality between the DNA age and it's integrity. This study was supported by the Romanian research program CNCS – PN-II-RU-TE-2011-3-0146.

CORRELATIONS BETWEEN PHYSICAL AND CHEMICAL INDICATORS OF WATER QUALITY FROM GRAND ŞOMUZUL RIVER IN 2008-2009

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The aim of the present study is to achieve some functional connections or stochastic links - correlation based on the equation of the regression line of physical parameters (flow, temperature, pH) and chemical parameters (flow, CBO5, CCOMn, NH_4^+, NO_3^-, NO_2^-,Fe total, PO_4^{3-}, Cl^-, SO_4^{2-}, suspensions, filterable residue) of Grand Şomuzul river water Mare, Suceava County. A comparative study of the physical parameter values (flow, temperature, pH) with experimentally values for chemical indicators was used in order to find a correlation between these physical and chemical parameters that determine the quality of water as well as cumulative effects of pollutants on the quality parameter values. This study try to reveal the existence of a synergistic context of factors, very important in the assessment of self-cleaning capacity of surface waters. For this purpose experimental data of mentioned parameters were used, obtained from water samples analysis from two sites of the river Şomuz (Dolheşti and Vorniceni), in 2008-2009.

DYNAMICS OF SOME PHYSICAL AND CHEMICAL INDICATORS OF SUCEAVA RIVER WATER IN 2009

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For a physico-chemical evaluation of global quality of Suceava river water, water samples were collected every two months during 2009, on the following sections (sites, locations): Brodina at 142 km distance from mouth; Mihoveni, 45 km distance from mouth; Tişăuţi, 34 km distance from mouth. The values obtained from physico - chemical analyzes of water were processed and compared with the limit values of quality grades, provided by the norm on surface water quality classification, in order to determine the ecological status of water bodies according to Order nr.161/2006. Along Suceava river, the water flows increase from upstream to downstream: the maximum value 4.47 m^3/s at Brodina (14.07.2009) increase at Mihoveni, the maximum value beeing 13.22 m^3/s (14.07.2009) and at Tişăuţi, the flow recorded on 14.07.2009 is 13.7 m^3/s. The annual average flows have fluctuated on very wide limits, depending on pluviometrical characteristics of rainfall on each year. Usually, the highest average flows is recorded in April, followed by June. Higher levels of flow in these months can be explained by strong contribution of rainwater supply to which is added the water from snowmelt. The smallest amount of water are flowing in winter and autumn. This paper systematizes the results concerning the dynamics of some experimentally determined physical and chemical indicators during 2009, on Suceava river water. (PH,OD,CBO_5,CCOMn, CCOCr). In order to have an accurate picture of analyzed physico-chemical parameters, the average values of these indicators were presented for comparison. Thus, the concentration of hydrogen ions (pH) has values between 8 in the lower course and 8.3 at the upper course, at Brodina. At this value, the waters are favorable for the organisms development. *The medium content of dissolved oxygen* decreases from February to July and then increase until December - January, the average values ranging between 10.53 mg/l and 14.25 mg/l. *Biochemical oxygen demand* has an average value of 1.45 mg/l in the upper course and 6.25 mg/l at the mouth. *The chemical oxygen demand* falls between 2.34 mg/l at Brodina and 4.67 mg/l at mouth, on Suceava. In 2009, Suceava River in the the control sections Brodina, Mihoveni and Tişăuţi was framed in quality classes I and II for all analyzed indicators.

CHANGES INDUCED BY TWO CHROMIUM-CONTAINING COMPOUNDS IN ANTIOXIDATIVE RESPONSE AND SOLUBLE PROTEIN LEVEL IN BARLEY SEEDLINGS

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Chromium is an important environmental pollutant. The changes in superoxide dismutase, catalase, and peroxidase activity and in soluble protein level have been analyzed in seedlings of *Hordeum vulgare* L. cv. Madalin (an commercial autumn six-row barley cultivar) after short exposure to 10, 100, 250, and 500 µM potassium dichromate and chromium chloride, containing 1.04, 10.39, 25.99, 51.99 µg/ml Cr(VI), and 0.52, 5.19, 12.99, 25.99 µg/ml

Cr(III), respectively. Heterogeneous responses have been generated to chromium stress. A direct relationship between chromium concentration and the amplitude of phenotype expression was not established. Patterns of superoxide dismutase and catalase are generally similar; in 5-days old seedlings the average values are smaller than control, but in 9-days old plantlets the mechanisms of antioxidative defence are activated and the two scavenging enzymes show values higher than control (up to 66 % in 500μM chromium chloride). Concerning peroxidase behaviour, its activity was inhibited - except 10 μM concentration - independent of plantlet age. The level of soluble protein decreased compared to control at first determination, while in 9-days old plantlets the protein synthesis was inhibited excepting concentrations of 10 and 100 μM potassium dichromate, and 250 μM chromium chloride, where the increases were insignificant.

SOME ASPECTS OF ANTIOXIDANT DEFENSE MECHANISMS IN WOODY SPECIES EXPOSED TO ANTHROPIC POLLUTION IN SUCEAVA COUNTY

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Increased production of reactive oxygen species in plant tissues caused by unfavorable environmental conditions is early response to different stresses and may provide cells with resistance against their formation. The subject of this paper is determination of catalase and peroxidase levels, components of the antioxidant defense mechanism, in various types of woody plants in order to study the effect of pollution by sulphur and copper exploitation in mining areas on the antioxidant enzymes activity in the leaf material taken from different Gymnosperm species as *Picea abies* L.Karst., *Larix decidua* Mill. and Angyosperms like *Salix* ssp *alba* L., *Populus tremula*, *Betula verrucosa* Ehrh. and *Fagus sylvatica* L. For this purpose, the measurement of catalase activity was performed using the Sinha method and determination of peroxidase level was carried out on the basis of ortho-dianisidine method. The results obtained lead to the conclusion that both catalase and peroxidase are effective biomarkers of pollution with sulfur, copper ores and barite but especially the acclimatization of species studied in conditions of chronic exposure.

THE EVALUATION OF THE PHYSIOLOGICAL AND BIOCHEMICAL RESPONSE OF THE FOREST SPECIES TO URANIUM POLLUTION IN CRUCEA-BOTUSANA, SUCEAVA COUNTY, ROMANIA

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The most economic activities which were the progress generator of the human society resulted in a multiple and significant anthropogenic impact on ecosystems. The scale which the anthropogenic impact is manifesting can vary greatly, being conditioned to general and local dynamic of the pollution generating processes, motive for the required undertaking of some investigations in order to the assessment it's dimensions. Considered to be polluting for the area forest ecosystem and surrounding that were taken the samples for this experiment, the uranium mine from Crucea - Botuşana in Suceava County was the target area taken in this study. Considering that depending on the quantity of polluting material the species are

exposed, the physiological and biochemical effects appear, such as reduced photosynthesis process due to chlorophyll degradation, increased respiratory rate, changes in protein metabolism and enzyme activity, the following physiological and biochemical indices were measured-catalase, peroxidase, the assimilator pigments that are included in photoreceptors of the two integrated photosystems in photosynthesis process, chlorophyll a and chlorophyll b. In addition, the ratio of chlorophyll a/chlorophyll b, carotenoid pigments and the relationship between chlorophyll and carotenes were taken into account and, in parallel, the amount of total soluble protein, the dehydrogenases Krebs cycle was determined. The investigations were made on leaf material taken from species of gymnosperms and the angiosperms and from soil samples being under the influence of pollution and the species in the control area- Putna, Suceava County, respectively.

BIOCHEMICALS CHANGES IN TWO PARSLEY (*PETROSELINUM CRISPUM* (MILL.) A. W. HILL) CULTIVARS UPON SALINE STRESS

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Parsley root has been used medicinally since ancient times for possible medicinal attributes as antioxidative, antimicrobial, anticoagulant, antihyperlipidemic and antihepatotoxic effects. The parsley importance is given to its high vitamins content (mainly vitamins C), some mineral elements (mainly iron), as well as volatile oils that play an important role in the pharmaceutical and food industries. In this study we examined the antioxidant responses of two parsley varieties (cultivated for roots and for leaves production) to saline treatments (50mM, 100mM, 150mM NaCl). Thus, the changes of some antioxidative enzymes, responsible for detoxifying ROS in parsley plantlet grown under NaCl salinity (superoxid dismutase – SOD, catalase – CAT and peroxidase – POD), were investigated. The leaves parsley plantlet variety don't survive at 150mM NaCl concentration. Ours results indicate that SOD activity decreases in the root parsley variety with an increase of salinity treatment application, while in the leaves parsley variety SOD activity increase with the rise of stress levels. Meanwhile, CAT and POD activities were fluctuant, sometimes contrastive being influenced by the concentration of NaCl solution as well as parsley varieties plantlets.

PRUNUS AVIUM CULTIVARS DIFFERENTIATION BASED ON SEQUENCE STATISTICS

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The aim of this study is to test the possibility of differentiation of some *Prunus avium* cultivars based solely on sequence statistics. The targeted sequence is the ~900bp-long intergenic spacer trnF-trnL on the chloroplast DNA. DNA extraction was carried out on 50 mg of leaf tissue stored at -80^{o}C and a combination of protocols were used. After the initial DNA extraction, using the Promega Maxwell 16 automatic system, the eluted DNA was incubated in CTAB incubation buffer, in the presence of proteinase K, 2-mercapto-ethanol and PVPP and isolated and purified using the chloroform:isoamyl alchool (24:1) protocol. DNA was then PCR-amplified in a 25 µl reaction volume containing GoTaq® Master mix (Promega), trnF and

trnL primers, DNA and nuclease-free water to 25 µl. The DNA was sequenced using the dideoxy nucleotide chain-termination method by the Beckman Coulter CEQ 8000 Genetic Analysis System. Sequence analysis was performed by using the DNAStar Lasergene v7.1. and MEGA 5 softwares.

DEUTERIUM DEPLETED WATER (DDW) AND SPRUCE BARK POLYPHENOLS EXTRACT IMPLICATE IN *ZEA MAYS* L. PLANT GROWTH AND DEVELOPMENT

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The aim of this study was to evaluate the effect of spruce bark aqueous extract and deuterium depleted water as bioregulators on the plant growth *Zea mays.* The following specific specific parameteres were closely monitorised: germination energy and germination capacity, plants vegetative organelles growth and development, photoassimilatory pigments concentrations, photosynthetic rate, respiration and transpiration rate. Deuterium depleted water or light water is distilled water microbiologically pure, with an isotopic concentration of 25 ppm, obtained by isotopic distillation, in vacuum, of natural water with an isotopic concentration of 145 ppm D / (D + H). The polyphenolic aqueous extract it was characterized in terms polyphenols total contents. The obtained data shown that the deuterium depleted water stimulates germination energy and capacity, radicle and stem elongation, vegetal biomass accumulation photoassimilating pigment synthesis and all physiologic ideces. Spruce bark aqueous extract, stimulates germination energy and capacity of maize seeds stimulates accumulation of biomass in maize seedlings elongation for all vegetative organs photoassimilating pigments synthesis for maize seedlings and all physologic indeces. Spruce bark aqueous extract in combination with deuterium depleted water stimulates the elongation of all vegetative organs and accumulation of biomass.

NEW NATURAL AMENDMENTS IN PHYTOREMEDIATION

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The study reveals the results of a phytoremediation process applied to a heavy metal contaminated soil, in close proximity to an energy power plant. Phytoremediation process was conducted by cultivating rape in the presence and absence of hemp shives as a natural soil amendment. The physiological responses of the rape plants such as variations in length and biomass accumulation in plants, as well as the concentration of assimilating pigments were investigated. Also, the concentrations of heavy metal ions (Cu (II) and Pb (II) were determined in soil and plants aiming to locate metal ions in different organs of plants. By using hemp shives as amendments, bioaccumulation capacity for copper and lead ions increases. In the case in which the concentration of metal ions was higher, there was a decrease in plant growth and development processes expressed by a decrease in root and stem length or by decreasing the amount of biomass accumulated in different vegetative organs.

RESEARCH ON THE ANTHROPIC IMPACT ON DEHYDROGENASES KREBS CYCLE SYSTEM IN SOME FOREST SPECIES IN MINING AREA, SUCEAVA COUNTY

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The Krebs cycle, a second stage of cellular respiration that occurs in the mitochondrion of the leaf cell and consist in a multistep processes plays a central role in catabolism of organic fuel molecules. The mining extraction technologies for both underground and surface, the preparation of copper ore and barite applied in Tarnita, respectively to the sulphur in Călimani Mountain and the excess of these elements in natural environment may cause malfunction of ecosystem. The dehydrogenases of Krebs cycle can give information on the type and the duration of the effects of pollutants on the metabolic activity in leaves, to subsequent area pollution, therefore, the aim of the present study has been to determine these effects on this enzymatic system activity. For this reason, the isocitrate dehydrogenase, the α-ketoglutat dehydrogenase, the succinate dehydrogenase and the malate dehydrogenase activity was determined using Sisoev and Krasna spectrophotometric method and the analysis of experimental results shows the differences from one sample to another sample of closely related species specificity, but also the effect of environmental factors.

STUDIES CONCERNING THE INFLUENCE OF INORGANIC POLLUTANTS ON THE QUALITY OF SOIL IN MINING AREA, SUCEAVA COUNTY

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The correct functioning of soil is provided by the biological activity of microorganisms from this level and the enzymatic activity reflects the metabolic processes which takes place in different environmental conditions and is very sensitive to both natural and anthropogenic disturbances, and show a quick response to changes induced in the soil ecosystem. The clearly identification of effects caused by sulphur exploitation and metal contamination on microbiological parameters (the activity of isocitrate dehydrogenase, α-ketoglutarate dehydrogenase, succinate dehydrogenase, malate dehydrogenase) is purpose of this study. The test was performed on samples collected from Călimani Mountain, Tarniţa and Rădăuţi (the last being considered the unpolluted area) from depth and the surface of soil and the enzymatic activity The method used is mainly based on the dehydrogenases capacity to transfer hydrogen from various sub layers to the 2,3,5-triphenyltetrazolium chloride that reduces itself and passes to red trifenyl formazan. The intensity of the colour of the resulting formazan was spectrophotometrically. After the analysis performed, the level of soil microorganisms activity may be considered an indicator of the condition of the ecosystem examined reflected by the availability of the organic matters on surface of soil and the intensity of the process of transformation and recirculation of organic matter.

RESPONSES OF ANTIOXIDANT ENZYMES IN PARSLEY SEEDLINGS AFTER SODIUM AZIDE TREATMENT

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The most important antioxidative enzymes in plants are the catalase (CAT), superoxide dismutase (SOD), peroxidase (POD), ascorbate peroxidase (APX), and glutathione S transferase (GST) which annihilates ROS negative effect. In our study we investigated the CAT, SOD and POX activity in Petroselinum crispum (Mill.) A.W. Hill, Ory cultivar, after 6 and 12 hours treatment with sodium azide (10-7, 10-5 and 10-3 mol/l). The first two concentrations, superoxide dismutase activity is higher than control showing the accumulation of increased amounts of superoxide radicals. Intensification of catalase activity at 10-3 mol/l sodium azide suggests the presence of important amounts of hydrogen peroxide in parsley seedlings. The peroxidase activity is higher than control both after 6 hours and 12 hours treatment, free radical generation is most likely involved in induction of POD activity.

DETERMINATION OF ANTIOXIDANT ENZYMATIC ACTIVITY IN SEVERAL HALOPHYTES FROM DOBROGEA AREA

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Halophytes have evolved various mechanisms of adaptations to stress tolerance including an increase of antioxidant enzymes activities. The present study was conducted in order to investigate the activity of some antioxidant enzymes (superoxid dismutase – SOD, catalase – CAT and peroxidase – POD) in several halophytes. For this, four halophytic species were collected during summer of 2012 from two distinct saline areas, located in South-East of Romania (Dobrogea). Species collected from Histria are *Plantago maritima* and *Bassia sedoides;* the first mentioned species was collected in various stages of development (vegetative and flowering phases). *Plantago coronopus, Spergularia media, Limonium gmelini,* and *Bassia sedoides* vegetating in Sulina were collected from two different habitats: littoral area and a habitat located at 1000 m from littoral. The results show that halophytes collected from 1000 m to littoral area were characterized by smaller levels of SOD activity than those collected from littoral. The peroxidase activity in halophytes collected from Sulina show various responses according to species and collecting points. Some of halophytes collected from Histria and Sulina have an undetectable level of catalase activity at the moment of determination; perhaps the role of this enzyme for removing H_2O_2 has been taken by peroxidase.

CYTOGENETIC STUDIES REGARDING TWO SPECIES OF *INULA: INULA SPIRAEIFOLIA* L. AND *INULA HIRTA* L.

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Nowadays, karyotyping and the morphological study of the mitotic chromosomes are compulsory stages for the complete characterization of a given species. In the present paper are described the karyotypes and the morphological traits of the chromosomes of two species of *Inula*: *Inula spiraeifolia* L. and *Inula hirta* L. We have used achenes of the two species. After germination the roots were prefixed in 0,2% colchicine, fixed and stained according to Feulgen method. We made microscopic slides by the squash method. The detection of the homologous chromosomes and the determination of their position in karyotype was carried out according to the method of Levan. The karyotype of *Inula spiraeifolia* L. (2n=16) is highly symmetrical with small length metaphasic chromosomes. All the eight pairs are classified as median chromosomes. All studied specimens were diploid. We have realized two variants of karyotype for *Inula hirta* L. (2n=16). In both cases the eight pairs are classified as median and submedian chromosomes. Also no polyploidisation phenomena were observed. As we know, this paper is the first report of karyological analysis of these species in Romania and our results are convergent with the data reported by foreign authors.

OXIDATIVE STRESS AND ITS IMPACT ON BIOCHEMICAL PARAMETERS OF PATIENTS WITH HEPATO-CELLULAR AFFECTIONS

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Oxidative stress as a factor that is disrupting oxidant/antioxidant balance of the organism at some level, is an important pathogenetic mechanism that is involved in the occurrence and development of liver disease. The present study aimed to determine markers of oxidative stress in patients of different ages diagnosed with acute viral hepatitis B, acute hepatitis C virus and liver cirrhosis hospitalized in the Department of Gastroenterology belonging County Hospital "Mavromati" Botosani. Both superoxide-dismutase and malon-dialdehyde showed significant increases in enzymatic activity in patients with acute viral hepatitis B and C, while in the case of liver cirrhosis, antioxidative defense enzyme system was found more depressed.

STUDIES ON SERUM PROTEIN LEVEL IN PATIENTS WITH HEPATIC CIRRHOSIS

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The liver synthesizes besides its structural proteins, most of the plasma proteins: albumin, α2-globulin-ceruloplasmin, α and β-lipoproteins, and a good part of protein coagulation factors (prothrombin, proconvertin, proaccelerin, fibrinogen). After the study of the serum proteins in patients with liver cirrhosis from Botosani County Hospital Mavromati were found decreases in albumin content both women and men installed, probably due to the

imbalance between synthesis and the degradation processes, and the γ-globulins increased values compared with the reference range.

CORRELATIONS REGARDING DIFFERENT ILNESS TYPES AND BLOOD GROUPS IN A REPRESENTATIVE POPULATION SAMPLE, FROM BOTOŞANI COUNTY

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Part of a larger study regarding the genetic polymorphisms present in the human population of Romania, it was investigated the frequency of different illness types and blood groups of AB0 system, on 1870 patients of Botoşani county which got blood transfusions during one year. From the total number of patients which got transfusions during one year in Botoşani Main Hospital, 314 of them were treated for different type of cancer. The obtained frequencies and sex ratios are normal for the Romanian population and for Europe, following the blood type distribution (the patients with AII blood type were the most frequent in the target group, than 0I, BIII, ABIV, men more than women, not depending on time of the year, older people more than young ones).

STUDIES OF ANTIBIOTIC RESISTANCE OF BACTERIAL STRAINS ISOLATED FROM RESPIRATORY TRACT INFECTIONS IN CHILDREN

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The respiratory tract infections represent about 50% of childhood diseases. The majority of bacteria involved in this kind of infections belong to *Staphylococcus* and *Streptococcus* genera, some of them with important role in human health. Because the phenomenon of antibiotic resistance increase over the years, studies about it are necessary. In this paper we present investigations about 2021 nasopharyngeal secretion samples gathering from children (about 1 to 18 years, boys and girls), during 2011, in Arges County. From all samples, 693 bacterial and fungal strains were isolated and for 468 staphylococcal strains the antibiogram was performed. For the most part of tested strains, the bacteria presented high resistance to Penicillin, Ampicillin, Methicillin, Ceftibuten, Erythromycin.

MIR-9-1 ABERRANT METHYLATION IS A FREQUENT EVENT IN BREAST CANCER AND IS ASSOCIATED WITH BONE METASTASES

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Background: Aberrant promoter methylation of classical tumor suppressor genes occurs frequently during carcinogenesis. Several lines of evidences suggest that this epigenetic change also regulates microRNAs expression and may represent a potential molecular marker for cancer. Methods: We examined the methylation status at the hsa-miR-9-1 gene promoter in a series of 66 breast cancer cases by methylation sensitive PCR (MSP) analysis. For 43 of the 66 patients paired normal breast tissue and/or pre invasive (ADH, DCIS) lesions were also available. As control methylation status was determined on 6 normal breast tissues obtained from reductive mammoplasty. Results: Methylation at mir-9-1 gene was detected in 32 out of 66 breast tumours (49%) and in none of the 6 normal breast tissues derived from reductive mammoplasty (P=0.02 □2- Test). In all cases the same methylation status was demonstrated in tumour specimen, paired normal breast tissues and/or pre-invasive (ADH and DCIS) lesions. An higher frequency of methylation was found in patients showing metastases at diagnosis as compared with non metastatic patients (P=0.03 Chi Square-Test). Moreover, methylation at mir-9-1 gene was more frequent in patients showing bone metastases as first metastatic sites (P=0.04 Chi Square-Test), and in the subgroup of patients developing only bone metastases as compared with patients developing metastases to visceral organs (P=0.03 Chi Square-Test). Conclusions: This study give further evidence of epigenetic mechanisms as regulators of miR-9 expression in breast cancer. Moreover, our results suggest an association between hypermethylation at the miR-9-1 gene and metastatic site.

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