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Effects of Some Electrotherapy Treatments of Pvx and Pvy Infected Potato Plantlets Cv. Roclas, on the Chlorophyll and Anthocyanin Content of Regenerated Plants

The purpose of this study was to estimate several biological effects of some treatments (electrotherapy in tissue culture) used for decrease PVX (potato virus X) and PVY (potato virus Y) infection level. The biological material used in experiments was plants (variety Roclas, virus free biological material) mechanically inoculated using PVX secondary infected plants from Bintje variety and PVY secondary infected plants from Record variety. Electrotherapy was applied in 9 variants: after washing and sizing explants, potato stems infected were exposed to either 40, 50 or 100 miliamper, for 5, 10 or 20 minutes, followed by sterilization and planting the axillary buds tip in vitro. Biological material selected for monitoring healthy potato plants was represented by regenerated plants on variants 7, 8 and 9. Physiological indicators were determined after 42 days of vegetation (PVX infected material) and after 36 vegetation days for the other plants. Monitoring the vegetative state of healthy regenerated plant was done by estimation the chlorophyll content of leaf (portable device SPAD 502 Chlorophyll Meter) and the anthocyanin content at leaf (portable device ACM 200 plus, Antocianin Chlorophyll Meter).Within the elimination of viruses PVY and PVX by electrotherapy was noticed a significant decrease of chlorophyll content compared to the control in case of variant V9 (100mA/20minutes). Regarding the content of anthocyanin, there were significant differences between values recorded in the experimental variants as was checked using simple correlation coefficient Pearson. Compared to the negative control, however, it was found small increase of anthocyanin content in case of material initially

infected with PVY (but the values were not statistically supported). As opposed the content of anthocyanin, we remark that monitoring of chlorophyll content indicate some changes in plant physiology, being observed effects of electrotherapy treatments over the biological material regenerated from plantlets infected with PVX and PVY and treated.

This work was supported by a grant of the Romanian National Authority for Scientific Research, CNDI-UEFISCDI, project number 178/2014.

2015

Biology Abstracts

Annual International Conference on Biology, 22-25 June 2015, Athens, Greece

Edited by Gregory T. Papanikos

THE ATHENS INSTITUTE FOR EDUCATION AND RESEARCH

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Preface

This abstract book includes all the abstracts of the papers presented at the *Annual International Conference on Biology, 22-25 June 2015, Athens, Greece,* organized by the Athens Institute for Education and Research. In total there were 32 papers and 36 presenters, coming from 15 different countries (Albania, Botswana, Brazil, China, Colombia, Egypt, Iran, Jordan, Kuwait, Mexico, Romania, Russia, South Korea, UK and USA). The conference was organized into nine sessions that included areas such as Genetics, Organismic and Environmental Biology, Molecular and Developmental Biology, Morphology/Physiology and other related fields. As it is the publication policy of the Institute, the papers presented in this conference will be considered for publication in one of the books and/or journals of ATINER.

The Institute was established in 1995 as an independent academic organization with the mission to become a forum where academics and researchers from all over the world could meet in Athens and exchange ideas on their research and consider the future developments of their fields of study. Our mission is to make ATHENS a place where academics and researchers from all over the world meet to discuss the developments of their discipline and present their work. To serve this purpose, conferences are organized along the lines of well established and well defined scientific disciplines. In addition, interdisciplinary conferences are also organized because they serve the mission statement of the Institute. Since 1995, ATINER has organized more than 150 international conferences and has published over 100 books. Academically, the Institute is organized into six research divisions and twenty-seven research units. Each research unit organizes at least one annual conference and undertakes various small and large research projects.

I would like to thank all the participants, the members of the organizing and academic committee and most importantly the administration staff of ATINER for putting this conference together.

Gregory T. Papanikos
President

FINAL CONFERENCE PROGRAM
Annual International Conference on Biology, 22-25 June 2015, Athens, Greece

PROGRAM

Conference Venue: **Titania Hotel, 52 Panepistimiou Avenue, Athens, Greece**

Organization and Scientific Committee

1. Dr. Gregory T. Papanikos, President, ATINER & Honorary Professor, University of Stirling, UK.
2. Dr. George Poulos, Vice-President of Research, ATINER & Emeritus Professor, University of South Africa, South Africa.
3. Dr. Anila Mesi-Dizdari, Academic Member, Atiner & Associate Professor, University of Shkodra Luigj Gurakuqi, Albania.
4. Dr. Nicholas Pappas, Vice-President of Academics, ATINER, Greece & Professor, Sam Houston University, USA.
5. Dr. Panagiotis Petratos, Vice President of ICT, ATINER, Fellow, Institution of Engineering and Technology & Professor, Department of Computer Information Systems, California State University, Stanislaus, USA.
6. Dr. Chris Sakellariou, Vice President of Financial Affairs, ATINER, Greece & Associate Professor, Nanyang Technological University, Singapore.
7. Dr. Nicolas Abatzoglou, Head, Environment Research Unit, ATINER & Professor, Department of Chemical & Biotechnological Engineering, Université de Sherbrooke, Canada, Chair Pfizer, PAT in Pharmaceutical Engineering, Director GREEN-TPV and GRTP-C & P.
8. Dr. Prakash Chand Sharma, Professor of Biotechnology and Dean, University School of Biotechnology & Director of Research and Consultancy, Guru Gobind Singh IndraprasthaUniversity, India.
9. Dr. Ibrahim. A. Hassan, Professor, Faculty of Science, Alexandria University, Egypt.
10. Dr. Glenn L. Sia Su, Associate Professor, University of the Philippines Manila, Philippines.
11. Dr. Emmanuel Mukwevho, Associate Professor, North West University, University of Johannesburg, South Africa.
12. Dr. Laurence Rahme, Associate Professor, Harvard Medical School, USA.
13. Dr. Reza Yousefi, Associate Professor of Biochemistry, Department of Biology, Shiraz University, Iran.
14. Dr. Witness Mojeremane, Associate Professor, Botswana College of Agriculture, Botswana.
15. Dr. Asma Amleh, Assistant Professor, Department of Biology, American University in Cairo, Egypt.
16. Dr. Ahmed El-Hashash, Assistant Professor, Keck School of Medicine & Herman Ostrow School of Dentistry, University of Southern California & Children's Hospital Los Angeles, USA.
17. Dr. Mechthild Nagel, Academic Member, ATINER & Professor, SUNY Cortland, USA.
18. Dr. Rouhollah Radjabi, Academic Member, ATINER & Associate Professor, Plant Protection Department, Islamic Azad University, Iran.
19. Dr. Stephen Steinberg, Academic Member, ATINER & Lecturer, University of Pensylavia, USA.

20. Dr. Kiriake Xerohemona, Academic Member, ATINER & Lecturer, Florida International University, USA.
21. Dr. Lutricia Snell, Academic Member, ATINER & Post-doctoral Fellow Research, North West University, South Africa.
22. Dr. Evangelos Spyrakos, Postdoctoral Researcher, Department of Biological and Environmental Sciences, School of Natural Sciences, University of Stirling, UK.
23. Dr. Cinzia Gravili, Researcher-Technician, Laboratory of Zoology and Marine Biology, University of Salento, Italy.
24. Ms. Olga Gkounta, Researcher, ATINER.

Administration

Stavroula Kyritsi, Konstantinos Manolidis, Katerina Maraki & Kostas Spiropoulos

Monday 22 June 2015

(all sessions include 10 minutes break)

08:30-09:00 Registration and Refreshments

09:00-09:30 (ROOM B) Welcome & Opening Remarks

- Dr. Gregory T. Papanikos, President, ATINER & Honorary Professor, University of Stirling, UK.
- Dr. George Poulos, Vice-President of Research, ATINER & Emeritus Professor, University of South Africa, South Africa.

09:30-11:30 Session I (ROOM B): Organismic and Environmental Biology I

Chair: George Poulos, Vice-President of Research, ATINER & Emeritus Professor, University of South Africa, South Africa.

1. Awatef Ali, Professor, Alexandria University, Egypt, Nawal El-Ghazaly, Alexandria University, Egypt, Samir Dekinesh, Alexandria University, Egypt, Sanaa Ahmed, Alexandria University, Egypt & Azza Sedky, Alexandria University, Egypt. Hepato-Toxicity of Gasoline as an Environmental Pollutant on Albino Mice.
2. Aaron Bunker, Assistant Professor, Morningside College, USA & Jeremy Schneider, Assistant Professor, Morningside College, USA. Once Upon a Time in a Biology Class.
3. Ermira Hoxhaj, Lecturer, Universiteti "Luigj Gurakuqi" Shkoder, Albania & Zyri Barjami, Universiteti "Luigj Gurakuqi" Shkoder, Albania. Index of Opportunity for Natural Selection for Total Koplik Population and its Surroundings and also for its Autochthonous Tribes.
4. *J. Reid Schwebach, Coordinator, Accelerator Program and Biology Department, George Mason University, USA. Advancing Graduate Education and Faculty Development with Discipline Based Education Research and the SIMPLE Framework: Creation and Implementation of Innovative and Engaging Teaching Strategies in a Biology Department.
5. Kwang Jin Kim, Senior Researcher, National Institute of Horticultural and Herbal Science, Korea, Md. Khalekuzzaman, National Institute of Horticultural and Herbal Science, Korea, Eun Ha Yoo, National Institute of Horticultural and Herbal Science, Korea, Hyeon Ju Kim, National Institute of Horticultural and Herbal Science, Korea, Hyun Hwan Jung, National Institute of Horticultural and Herbal Science, Korea & Hye Sook Jang, National Institute of Horticultural and Herbal Science, Korea. Phytoremediation of VOCs: Improvement of Indoor Air Quality by Potted Plants. (Monday, 22nd of June 2015, Morning Session)

11:30-13:30 Session II (ROOM B): Genetics, Molecular and Developmental Biology I

Chair: *J. Reid Schwebach, Coordinator, Accelerator Program and Biology Department, George Mason University, USA.

1. Soad Hamed, Associate Professor, Helwan University, Egypt, Hatem A. El-mezayen, Helwan University, Egypt, Mohamed Mohei, Cairo University, Egypt & Mahmoud Abdelrahman, Helwan University, Egypt. Clinical Utility of Interleukin 17 in the Assessment of Hepatic Fibrosis in Schistosoma/hepatitis C Coinfected Patients: Its Role in Extracellular Remodeling.
2. *Katerina Lazidou, Ph.D. Student, University of Reading, U.K., D. Charalampopoulos, University of Reading, U.K. & K. Watson, University of Reading, U.K. Optimizing Enzyme Behaviour through Protein Engineering.
3. Tatyana Zykova (Vatolina), Research Worker, Institute of Molecular and Cellular Biology of the Siberian Branch of the Russian Academy of Sciences, Russia, Darya Demidova, Research worker, Student, Victor Levitsky, Research Worker, Varvara Khoroshko, Research Worker, Elena Belyaeva, Main Research Worker & Igor Zhimulev, Main Research Worker, Institute of Molecular and Cellular Biology of the Siberian Branch of the Russian Academy of Sciences, Russia. Molecular and Genetic Structure of Polytene Chromosome Banding Pattern in *Drosophila Melanogaster*.
4. Mai Abdul Rahman, Graduate Student, The American University in Cairo & Asma Amleh, Assistant Professor, The American University in Cairo, Egypt. Mouse Testis-derived Mesenchymal Stromal Cells: Isolation, Propagation and Characterization.
5. Heba Shawer, Graduate Student, American University in Cairo, Egypt, Aya El Serw, Undergraduate Student, American University in Cairo, Egypt, Basel Refky, Assistant Lecturer, Mansoura Oncology Center, Egypt & Asma Amleh, Assistant Professor, American University in Cairo, Egypt. The Expression Pattern of Mirna-590-3P In Epithelial Ovarian Cancer is a Potential Biomarker for Ovarian Cancer Patients.

13:30-14:30 Lunch

14:30-16:30 Session III (ROOM B): Morphology – Physiology I

Chair: *Ludmil Benov, Professor, Kuwait University, Kuwait.

1. Nadezhda Goncharova, Head, Research Institute of Medical Primatology, Russia & Olga Chigarova, Graduate Student, Research Institute of Medical Primatology, Russia. Individual and Age-Related Differences of Stress Responsiveness of the Hypothalamic-Pituitary-Adrenal Axis and its Vasopressinergic Regulation in Monkeys.
2. Mahmoud Al-Shawabkeh, Assistant Professor, Applied Sciences University, Jordan. Evaluation of Novel Compound Benzoylphenyl -Indole-Carboxamide Effect on Hyperlipidemic and Hyperglycemic Rat.
3. Anila Mesi (Dizdari), Associate Professor, University of Shkodra "Luigj Gurakuqi", Albania & Ditika Kopliku, Associate Professor, University of Shkodra "Luigj Gurakuqi", Albania. Physiological Feedback and Tolerance of *Vicia Faba* L. to Cadmium and Zinc and Their Interactions.

16:30-18:30 Session IV (ROOM B): Special Topics in Biology

Chair: Nadezhda Goncharova, Head, Research Institute of Medical Primatology, Russia.

1. *Ludmil Benov, Professor, Kuwait University, Kuwait. Metalloporphyrins and the Fight against Drug-Resistant Pathogens.
2. *Lijuan Qiu, Vice Dean, Institute of Crop Science, Chinese Academy of Agricultural Sciences, China, Ying-hui Li, Chinese Academy of Agricultural Sciences, China, Jianxin Ma, Purdue University, USA, Guangyu Zhou, Novogene Bioinformatics Institute, China, Scott Jackson, University of Georgia, USA & Ruiqiang Li, Novogene Bioinformatics Institute, China. Genomic Diversity and Domestication of Soybean.
3. Wen-Li Chen, Professor, Huazhong Agricultural University, China, Ju-Yuan Zhang, Postdoc, Huazhong Agricultural University, China, Xue-Mei Deng, Master Student, Huazhong Agricultural University, China, Feng-Pu Li, Master Student, Huazhong Agricultural University, China, Li Wang, Associate Professor, Huazhong Agricultural University, China, Qiao-Yun Huang, Professor, Huazhong Agricultural University, China & Cheng-Cai, Professor, Aix-Marseille Université and CNRS, Laboratoire de Chimie Bactérienne - UMR7283, France. RNase E Forms a Complex with Polynucleotide Phosphorylase in Cyanobacteria via a Cyanobacterial-Specific Nonapeptide in the Noncatalytic Region.

18:30-20:30 Session V (ROOM C): A Round-Table Discussion on The Future of Technology and Engineering Education

Chair: Dr Lampros Pyrgiotis, Independent Researcher; President, Greek Society of Regional Scientists, Greece.

1. Dr Jong-Rong Chen, Professor, National Central University, Taiwan.
2. Dr Don Clucas, Senior Lecturer, University of Canterbury, New Zealand.
3. Dr Patrick van der Duin, Assistant Professor, Delft University of Technology, the Netherlands.
4. Dr Konstadinos Goulias, Professor, University of California Santa Barbara, USA.
5. Dr Till Hanisch, Professor, BW State University, Germany.
6. Dr Theo van Niekerk, Professor, Nelson Mandela Metropolitan University, South Africa.
7. Dr Theodore Trafalis, Head, Industrial Research Unit, ATINER & Professor of Industrial and Systems Engineering, The University of Oklahoma, USA.
8. Dr Themistoklis Xanthopoulos, Professor Emeritus & former Rector, National Technical University of Athens (NTUA), Greece.
9. Dr Jin Zhouying, Director, Chinese Academy of Social Sciences, China.

21:00-23:00 Greek Night and Dinner (Details during registration)

Tuesday 23 June 2015

09:00-11:00 Session VI (ROOM B): Organismic and Environmental Biology II

Chair: Christopher Janetopoulos, Associate Professor, University of the Sciences, USA.

1. Joan Gaston Zamora-Abrego, Professor, Universidad Nacional de Colombia, Colombia & Angela Maria Ortega-Leon, Professor, Universidad de Cordoba, Colombia. Current Conservation Status of the American Crocodile, *Crocodylus acutus* (Cuvier, 1807), in the National Natural Park Paramillo, at Córdoba-Colombia.
2. Jonathan Holz, Assistant Professor, D'Youville College, USA, Eric Beier & J. Edward Puzas, D'Youville College, USA. Effects of Lead Deposition on the Musculoskeletal System.
3. *Mohammadjavad Seghatoleslami, Associate Professor, Islamic Azad University, Birjand Branch, Iran & Omid Ashrafi, Former M.Sc. Student, Islamic Azad University, Birjand Branch, Iran. Intercropping of Two Medicinal Plants (Ajowan and Cumin), an Approach to Sustainable Agriculture. (Tuesday)
4. *Hassan Feizi, Assistant Professor, University of Torbat-e-Heydarieh, Iran. Response of Saffron *(Crocus sativus L.)* to Summer Irrigation and Conservation Tillage in Iran.
5. Ditika Kopliku, Associate Professor, University of Shkodra "Luigj Gurakuqi", Albania & Anila Mesi (Dizdari), Associate Professor, University of Shkodra "Luigj Gurakuqi", Albania. Potential Mutagenic Activity of Leachate from a Municipal Solid Waste Landfill on Two Higher Plants.
6. Hossein Sahabi, Ph.D. Student, Ferdowsi University of Mashhad, Iran. Agronomic and Economic Evaluation of Saffron and Wheat Crop Production Systems in Torbat-e-heydarieh, Iran.

11:00-12:30 Session VII (ROOM B): Morphology – Physiology II

Chair: *Mohammadjavad Seghatoleslami, Associate Professor, Islamic Azad University, Birjand Branch, Iran

1. *Witness Mojeremane, Associate Professor, Botswana College of Agriculture, Botswana, Thembinkosi Mathowa, Technician, Botswana College of Agriculture, Botswana, Patrick Jane, Undergraduate Student, Botswana College of Agriculture, Botswana, Christopher Mpofu, Junior Researcher, Botswana College of Agriculture, Botswana & Gabatshele Mbona Legwaila, Senior Lecturer, Botswana College of Agriculture, Botswana. Germination and Seedling Emergence Studies in Nyala Tree (Xanthocercis Zambesiaca Baker).
2. Carmen Liliana Badarau, Researcher and Lecturer, National Institute of Research and Development for Potato and Sugar Beet Brasov and Transilvania University of Brasov, Romania, Florentina Damsa, Researcher, National Institute of Research and Development for Potato and Sugar Beet Brasov, Romania, Nistor Andreea & Chiru Nicoleta, National Institute of Research and Development for Potato and Sugar Beet Brasov, Romania. Effects of Some Electrotherapy Treatments of Pvx and Pvy Infected Potato Plantlets Cv. Roclas, on the Chlorophyll and Anthocyanin Content of Regenerated Plants.
3. Seyyed Gholamreza Moosavi, Associate Professor, Islamic Azad University, Birjand Branch, Iran, Saeed Ghanbari, Former Master Student, Islamic Azad University, Birjand Branch, Iran & Hamid Reza Zabihi, Assistant Professor, Islamic Azad University, Birjand Branch, Iran. The Effect of Plant Growth Promoting

Rhizobacteria (PGPR) and Zinc Fertilizer on the Yield and Agronomic Traits of Maize under Water Deficit Stress Condition.

12:30-14:00 Session VIII (ROOM B): Genetics, Molecular and Developmental Biology II

Chair: Alejandra Soto-Estrada, Senior Research Professor, Colegio de Postgraduados, Campus Veracruz, Mexico.

1. Christopher Janetopoulos, Associate Professor, University of the Sciences, USA. The Spatial and Temporal Regulation of PI(4,5)P2 Is Critical for Symmetry Breaking in Cell Division and Migration.
2. Maliheh Entezari, Student, Department of Genetics, Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran & Shida Kazemi, Department of Medicine, Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran. Anticancer Effects of Triterpenoid Extracted from *Glycyrrhiza Glabra* Root on Human Breast Cancer Cell Line
3. Mehrdad Hashemi, Student, Department of Genetics, Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran & Shaghayegh Karimi, Department of Genetics, Tehran Medical Sciences Branch , Islamic Azad University, Tehran, Iran. Apoptotic Effects of Glycyrrhetinic Acid in Human Lung Carcinoma.

14:00-15:00 Lunch

15:00-16:30 Session IX (ROOM B): Morphology – Physiology III

Chair: Mahmoud Al-Shawabkeh, Assistant Professor, Applied Sciences University, Jordan.

1. Lan Jiang, Assistant Professor, Oakland University, USA. Drosophila *Expansion* Gene Controls Trachea Tube Size. (Tuesday, 23rd of June 2015)
2. Alejandra Soto-Estrada, Senior Research Professor, Colegio de Postgraduados, Campus Veracruz, Mexico & Catarino Avila-Resendiz, Associate Research Professor, Colegio de Postgraduados, Campus Veracruz, Mexico. Floral Biology of Female and Hermaphrodite Plants from Mexican Native Papaya.
3. *Reza Yousefi, Associate Professor, Shiraz University, Iran. The Pleiotropic Preventive Effects of Curcumin in Diabetes Mellitus; The Insights into Attenuation of Postprandial Hyperglycemia and Downstream Molecular Events.
4. Caroline Berardi Chaibub, Student, Unifenas, Brazil, Maria Lucia, Unifenas, Brazil, Evelise Aline Soares, Unifenas, Brazil, Paul Cesar Garcia Naves, Unifenas, Brazil & Jose Antonio Dias Garcia, Unifenas, Brazil. Influence of Urutu (Bothrops Alternatus) Venom in the Lipid Profile in Dyslipidemic Rats.

16:30-19:00 Urban Walk (Details during registration)

20:30- 22:00 Dinner (Details during registration)

Wednesday 24 June 2015
Cruise: (Details during registration)

Thursday 25 June 2015
Delphi Visit: (Details during registration)

Mai Abdul Rahman
Graduate Student, The American University in Cairo
&
Asma Amleh
Assistant Professor, The American University in Cairo, Egypt

Mouse Testis-derived Mesenchymal Stromal Cells: Isolation, Propagation and Characterization

Objective: Mesenchymal Stromal/Stem Cells (MSCs) isolated from different tissues are promising tools for regenerative medicine. However, the rarity of these populations is considered a limiting factor in their therapeutic potential. Although few studies have reported the isolation MSCs from the testis, there is no report on their isolation from the mouse despite its close genetic similarity to humans. The objective of the present study is to utilize the mouse model for the isolation and characterization of testis-derived Mesenchymal Stromal Cells (tMSCs).

Methods and Results: We employed a new method to enrich for MSCs from testicular cell populations using positive selection on laminin-coated dishes. The isolated cell fraction was plastic adherent and had been successfully propagated *in vitro*. Reverse Transcription-Polymerase Chain Reaction (RT-PCR) and immunophenotyping using Fluorescence-Activated Cell Sorter (FACS) demonstrated that tMSCs were positive for mesenchymal stem cell markers; CD29, CD44, CD73 and CD90 but negative for the hematopoietic cell marker CD45. The lack of expression of the germ cell marker VASA confirmed that tMSCs are not of germ cell origin.

Conclusion: To our knowledge, this is the first study to report the isolation of Mesenchymal Stromal Cells from the mouse testis. Based on our findings, tMSCs possess characteristics and marker profiles similar to that of MSCs, which makes them a potential valuable tool in cell therapy.