EFFEC OF SOME CHEMO- AND ELECTROTHERAPIES ON POTATO VIRUS Y AND X INFECTED *Solanum tuberosum L.* PLANTLETS (cv. ROCLAS)

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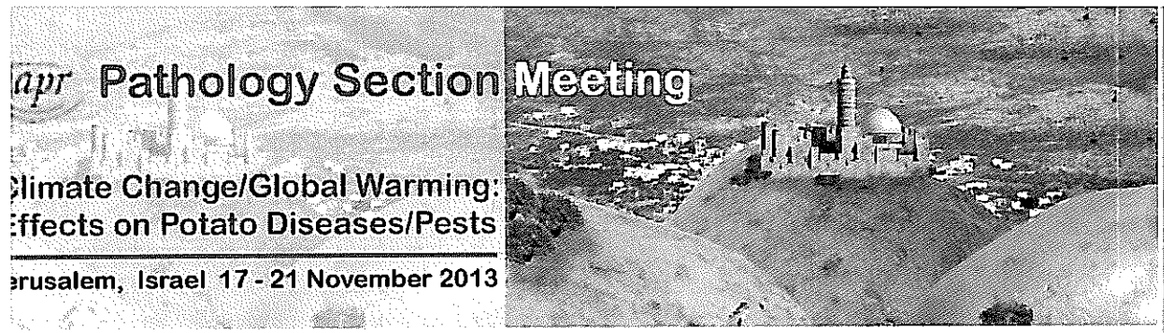
The purpose of this study is to decrease the PVY (potato virus Y) and PVX (potato virus X) infection level, using electrotherapies, antiviral compounds (ribavirin and oseltamivir) in the tissue culture and several other treatments (*Satureja hortensis* essential oils, H_2O_2 1mM pH 5.6) applied by spraying the microplants when acclimatized in a greenhouse. The biological material used in experiments was plants (variety Roclas, virus free) mechanically inoculated using: PVY secondary infected plants from cv. Record (PVY^o); PVX secondary infected plants from cv. Bintje. Electrotherapy was applied in 6 variants: after washing and sizing explants, potato stems infected were exposed to either 40 or 100 miliampers (mA), for 5, 10 or 20 minutes, followed by sterilization and immediate planting the axillary buds tip *in vitro*. Chemotherapy was undertaken with ribavirin (RBV) and oseltamivir (OSMV) (RBV 40 mg l^{-1} +OSMV 40mg l^{-1}; RBV 20mg l^{-1} + OSMV 40 mg l^{-1}; RBV 20mg l^{-1} + OSMV 80mg l^{-1}). The first variant (RBV40mg l^{-1} + OSMV40mg l^{-1} added to the tissue culture medium + essential oils treatments of acclimatisated plants) and the electrotherapy variant 10 minutes at 100mA showed the highest rate of virus eradication, the maximum values of the therapy efficiency. Other researchers (Griffiths 1990; Lozoya 1996; Sabry 2009) remarked a decrease in the concentration of potato virus X and Y by applying combination of several therapies for potato, but the results obtained in our research work concerning the values of TE (therapy efficiency) were different.

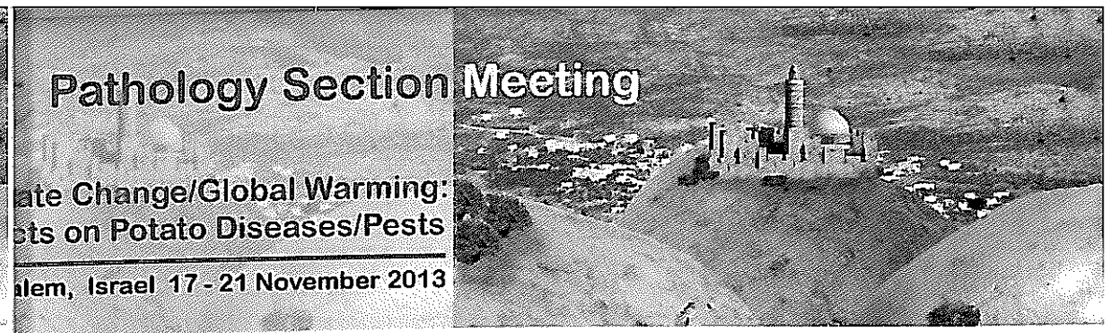
Acknowledgements This work was supported by a grant of the Romanian National Authority for Scientific Research, CNDI-UEFISCDI, project number 104

Griffiths, H.M., S.A. Slack and J.H. Dodds (1990) Effect of chemical and heat therapy on virus concentrations in *in vitro* potato plantlets.*Can. J. Bot.* 68: 1515-1521.

Lozoya-Saldana, H., F.J. Abello and G.R. Garcia (1996) Electrotherapy and shoot tip culture eliminate Potato virus X in potatoes. *Am. J. Potato Res.* 73: 149-154.

Sabry Y.M., Mahmoud, Maher H. Hosseny and Mamdouh H. Abdel-Ghaffar (2009) Evaluation of some therapies to eliminate Potato Y Potyvirus from potato plants. *Inter. J. Virol.* 5: 64-76.





EUROPEAN ASSOCIATION FOR POTATO RESEARCH

PATHOLOGY SECTION MEETING

Jerusalem, November 17-21, 2013

European Association of Potato Research
Pathology Section Meeting
Jerusalem 2013

Edited by:
Victor Gaba and Leah Tsror

EAPR Pathology Section Meeting - Jerusalem, Israel 17-21 November 2013

Organizing Committee:

Chairperson:
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Department of Plant Pathology and Weed Research, Agricultural Research Organization, Gilat Research Center, Israel

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Department of Plant Pathology and Weed Research, Agricultural Research Organization, Volcani Center, Israel

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R&D, M'aon Enterprises, Israel

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PROGRAM OF THE EAPR PATHOLOGY SECTION MEETING

Sunday, 17 November, 2013

16:00 Arrival, Registration and Poster Set-Up

19:00 Welcome Reception at Dan Panorama Hotel

Monday, 18 November, 2013

08:00 Registration

9:00- 9:30 **Welcome and Opening Address**

Leah Tsror, Organizing Committee Chair

Yoram Kapulnik, Director of the Agricultural Research Organization

Zvi Alon, Director of the Plants Production & Marketing Board Council

Yossi Arazi, Israeli Potato Growers Organization

9:30-10:30 **Session I – Climate Change**
*Moderator: **Leah Tsror**, Israel*

9:30 **OPENING LECTURE:**
CLIMATE CHANGES OVER ISRAEL – RECENT OBSERVATIONS AND FUTURE PREDICTIONS
Pinhas Alpert, Tel Aviv University, Israel

10:10 EFFECT OF CLIMATE CHANGE ON PATHOGENS AND PESTS OF POTATOES IN SOUTH AFRICA
Jacquie van der Waals, University of Pretoria, South Africa

10:30 ***Coffee Break***

11:00 – 12:30 **Session II – Early and Late Blight**
Moderator: ***Dani Shtienberg,*** *Israel*

11:00 LATE BLIGHT IN POTATO IN ISRAEL: A 30 YEARS PERSPECTIVE
Yigal Cohen, Bar-Ilan University, Israel **(Invited Speaker)**

11:30 BANJO FORTE: INNOVATIVE SOLUTION FOR POTATO LATE BLIGHT
Daphna Blachinsky, Makhteshim Agan Group, Israel

11:50 THE EARLY BLIGHT SITUATION IN SWEDEN
Eva Edin, Swedish University of Agricultural Sciences, Sweden

12:10 ALTERNARIA DISEASES OF POTATOES: EPIDEMIOLOGY AND MANAGEMENT
Dani Shtienberg, ARO, Volcani Center, Israel

12:30 ***Lunch Break and Poster Viewing***

14:00 – 15:40 **Session III - Soft Rot (A)**
Moderator: ***Valérie Hélias,*** *France*

14:00 POTATO BLACKLEG, REMEDIES FOR A WAY OUT
Jan van der Wolf, Plant Research International, The Netherlands **(Invited Speaker)**

14:30 REGULATORS INVOLVED IN THE PRODUCTION OF *DICKEYA SOLANI* VIRULENCE FACTORS IN FRAME OF BIODIVERSITY
Ewa Lojkowska, University of Gdansk, Poland

14:50 USING ESSENTIAL OIL VAPOURS TO PROTECT POTATO, CABBAGE OR CELERY FROM *PECTOBACTERIUM CAROTOVORUM*, A MAJOR PATHOGEN OF POTATO, MAY RESULT IN INCREASED VIRULENCE
Elad Landau, The Hebrew University of Jerusalem, Israel

15:10 INFLUENCE OF TEMPERATURE ON IN VITRO AND IN VIVO GROWTH OF BACTERIA FROM GENUS *PECTOBACTERIUM* AND *DICKEYA*
Renata Lebecka, Plant Breeding and Acclimatization Institute, Poland

15:30 CONTROLLING SOFT ROT BACTERIA THROUGH EPIDEMIOLOGY AND RESISTANCE SCREENING
Sonia Humphris, James Hutton Institute, UK

15:50 ***Coffee Break***

16:20 – 18:10 **Session IV- Soft Rot (B)**
Moderator: ***Ewa Lojkowska,*** *Poland*

16:20 BIOLOGY AND CONTROL OF *DICKEYA* SPP. AFFECTING POTATO IN THE UK
John Elphinstone, FERA, UK **(Invited Speaker)**

16:50 MONITORING OF IMPORTED AND NATIONAL SEED LOTS IN THE CONTROL OF PECTINOLYTIC BACTERIA IN THE SWISS POTATO BRANCH
Patrice de Werra, Bern University of Applied Sciences, Switzerland

17:10 BLACKLEG SITUATION IN SWEDEN
Paula Persson, Swedish University of Agricultural Sciences, Sweden

17:30 RISK ASSESSMENT FOR THE TRANSMISSION OF *DICKEYA* SPP. FROM THE PROCESSING OF INFECTED IMPORTED WARE POTATOES IN N. IRELAND
Gillian Young, Agri-Food and Biosciences Institute, UK

17:50 CHARACTERIZATION OF OUTBREAKS OF POTATO BLACKLEG IN NORTH FINLAND
Yeshitila Degefu, MTT Agrifood Reaserch, Finland

18:15 ***Night tour of Old City***
Light & Sound – David's Tower

Tuesday, 19 November, 2013

8:00-18:00 **Professional Tour**
Gilat Research Center (ARO), Potato fields, Irrigation, B'sor Water Reservoir and more!

Wednesday, 20 November, 2013

07:45 Registration

8:30- 9:40 **Session V- Diagnostics**
Moderator: ***Victor Gaba****, Israel*

8:30 EPIDEMIOLOGY, DIAGNOSTICS AND CONTROL OF POTATO DISEASES
Alison K. Lees, The James Hutton Institute, UK **(Invited Speaker)**

9:00 CHARACTERIZATION OF POTATO FUNGAL PATHOGENS USING FTIR SPECTROSCOPY
Ami Pomerantz, Ben Gurion University of the Negev, Israel

9:20 DETECTION OF NON-EUROPEAN ISOLATES OF *RALSTONIA SOLANACEARUM* SPECIES COMPLEX
Tanja Dreo, National institute of Biology, **Slovenia**

9:40- 11:10 **Session VI- Soil Borne Pathogens**
Moderator: ***Andreas Keiser,*** *Switzerland*

9:40 MANAGEMENT OF BLACK DOT ROOT ROT
Barry Jacobsen, Montana State University, USA

10:00 CHLOROPICRIN SOIL FUMIGATION PROGRAMS FOR POTATO (*SOLANUM TUBEROSUM* L.) PRODUCTION
Chad Hutchinson, TriEst Ag Group, North Carolina, USA

10:20 EPIDEMIOLOGY AND CONTROL OF POWDERY SCAB IN POTATO CULTIVATED IN HOT CLIMATE AREA
Leah Tsror, ARO, Gilat Research Center, Israel

10:40 ***Coffee Break***

Wednesday, 20 November, 2013 (Continued)

11:10- 12:20 **Sessions VII – Black Scurf**
Moderator: ***Jacquie van der Waals****, South Africa*

11:10 PREVENTION OF POSTHARVEST DISEASES OF POTATO TUBERS BY OPTIMIZING HARVEST TIME AND STORAGE CONDITIONS
Dani Eshel, ARO, Volcani Center **(Invited Speaker)**

11:40 *RHIZOCTONIA SOLANI:* IMPORTANCE OF SOIL INFECTION IN INTENSIVE CROPROTATIONS
Andreas Keiser, Bern University of Applied Science, Switzerland

12:00 IDENTIFYING THE KEY-STAGES OF *RHIZOCTONIA SOLANI* AG-3 PT EPIDEMICS: A CRUCIAL STEP TO DEVELOP INTEGRATED CONTROL STRATEGIES
Karima Bouchek-Mechiche, IRNA, France

12:20-13:30 ***Lunch Break and Poster Viewing***

13:30-15:30 **Session VIII- Virology**
Moderator: ***Alexander Karasev*** *USA*

13:30 POTATO VIRUSES IN ISRAEL
Victor Gaba, ARO, Volcani Center, Israel

13:50 RECENT EVOLUTION OF THE POTATO VIRUS Y (PVY) POPULATIONS IN SWISS SEED POTATO PRODUCTION
Brice Dupuis Agroscope, Institute for Plant Production Sciences, Switzerland

14:10 POTATO VIRUS Y: A NEW PROBLEM IN POTATO
Alexander Karasev, University of Idaho, USA

14:30 ANTIGENIC STRUCTURE OF POTATO VIRUS Y
Olga Nikolaeva, University of Idaho, USA

14:50 A NEW VIRUS THREAT TO SEED-POTATO CERTIFICATION IN BRAZIL: THE WHITEFLY-TRANSMITTED TOMATO CHLOROSIS VIRUS
Jose A Caram de Souza-Dias, APTA/IAC-CPD-Fitossanidade, Brazil

15:10 EFFECT OF SOME CHEMO- AND ELECTROTHERAPIES ON POTATO VIRUS Y AND X INFECTED *SOLANUM TUBEROSUM* L. PLANTLETS (CV. ROCLAS)
Carmen Liliana Badarau, National Institute for Research and Development for Potato and Sugar Beet, Romania

15:30 ***Coffee Break***

Wednesday, 20 November, 2013 (Continued)

16:00- 17:40 **Session IX- Biological Control and Management**
Moderator: ***Idit Ginzberg****, Israel*

16:00 USE OF THAXTOMIN A AS A SELECTIVE AGENT FOR SCREENING POTATO GENOTYPES FOR RESISTANCE TO COMMON SCAB
Lea H Hiltunen, MTT, University of Oulu, Finland

16:20 ANTAGONISTIC ACTIVITY OF *PSEUDOMONAS* SP. P482 TOWARDS PLANT PATHOGENIC BACTERIA AND FUNGI
Sylwia Jafra, University of Gdansk, Poland

16:40 INDUCTION OF GERMINATION OF *RHIZOPUS ORYZAE* UNDER STARVATION USING HOST METABOLITES INCREASES SPORE SUSCEPTIBILITY TO HEAT STRESS
Tidhar Turgeman, ARO, Volcani Center, Israel

17:00 **ISOLATION AND CHARACTERIZATION OF NOVEL SOIL-BORNE LYTIC BACTERIOPHAGES INFECTING *DICKEYA* SPP. BIOVAR 3 (*D. SOLANI*)**
Robert Czajkowski, University of Gdansk, Poland

17:20 EFFECTS OF PLANT ANTIMICROBIAL POLYPHENOLS ON PATHOGENICITY OF SOFT ROT ERWINIAS
Iris Yedidia, ARO, Volcani Center, Israel

17:40 **Assembly of the Pathology Section Members**

19:00 **Gala dinner – Khan, Events Gallery**