



PROGRAM





PROGRAM

Monday, September, 18th

- 16:00 – 19:30 Registration
19:30 – 20:20 Opening ceremony
20:20 – 22:00 Welcome cocktail

Tuesday, September, 19th

- 08:00 – 09:15 Registration and poster set up
09:15 – 09:30 Welcome message
Ivanka Tringovska, Yuling Bai

Session: Genetic resources
Chairs: Richard Pratt and Amol Nankar

- 9:30 – 10:00 **Keynote talk:** From wild to mild and back again: genetic diversity, crop improvement strategies and our shared cultural heritage with Chile and eggplant
Richard Pratt, New Mexico State University, USA
- 10:00 – 10:30 **Keynote talk:** The potential of genetic resources and new experimental populations for the enhancement of eggplant breeding
Jaime Prohens, COMAV, Universitat Politècnica de València, Spain
- 10:30 – 10:50 The mutation of *CaCK1* causes seedless fruits in chili pepper (*Capsicum annuum*)
Takahiro Maki, Kyoto University, Japan
- 10:50 – 11:00 **Family photo**
- 11:00 – 12:00 **Poster session and coffee time**
- 12:00 – 12:20 Current status, challenges and breakout opportunities in pepper breeding
Csaba Szamosi, Orosco Ltd., Hungary
- 12:20 – 12:40 Genetic diversity, population structure and relationships in a collection of pepper (*Capsicum* spp.) insular Spanish landraces obtained with Genotyping-by-sequencing (GBS)
Neus Ortega-Albero, COMAV, Universitat Politècnica de València, Spain

12:40 - 13:30 Lunch break

Session: Climate change resilience – breeding for biotic and abiotic stress resistance

Chairs: Véronique Lefebvre and Sota Koeda

13:30 - 14:00 **Keynote talk:** Deciphering the pepper-pathogen-environment interactions to reduce pesticide use and cope with climate change
Véronique Lefebvre, INRAE, GAFL, France

14:00 - 14:20 Begomovirus resistance gene *PepY-2* encodes DFDGD-Class RNA-dependent RNA polymerase in *Capsicum*
Sota Koeda, Kindai University, Japan

14:20 - 14:40 Field evaluation of *PepY-1* conferred begomovirus resistance in pepper (*Capsicum annuum*)
Nadya Pohan, Kindai University, Japan

14:40 - 15:00 Selection for drought and heat stresses tolerance in a F3 population derived from an interspecific cross between *S. melongena* and *S. insanum*
Esra Cebeci, Bati Akdeniz Agricultural Research Institute, Türkiye

15:00 - 16:00 **Poster session and coffee time**

Chairs: Madhavi Reddy Kambham and Hatice Filiz Boyaci

16:00 - 16:30 **Keynote talk:** Breeding for biotic stress resistance in chilli (*Capsicum annuum* L.)
Madhavi Reddy Kambham, Indian Institute of Horticultural Research, India

16:30 - 16:50 Insect problems in a changing world: Breeding for insect resistant plants under salinity stress
Lotte Caarls, Plant Breeding, Wageningen University & Research, the Netherlands

16:50 - 17:10 Efficiency of visual selection to resistance to *Verticillium wilt* for breeding programs in eggplant
Hatice Filiz Boyaci, Recep Tayyip Erdogan University, Türkiye

17:10 - 17:30 Screening of a pepper collection for resistance to powdery mildew caused by *Leveillula taurica*, a worldwide threat
Flavie Cussonneau, INRAE, GAFL, SAKATA, France



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- 17:30 - 17:50 Assessment results of salinity stressed F2 population originated from interspecific hybridization of eggplant with wild relative *S. incanum* L.
Esra Cebeci, Bati Akdeniz Agricultural Research Institute, Antalya, Türkiye
- 17:50 - 18:10 Evaluation of the effects of grafting and vermicompost applications on the morphophysiological properties of eggplant under drought stress with principal component analysis
Hatice Filiz Boyaci, Recep Tayyip Erdogan University, Türkiye

Wednesday, September, 20th

08:10 - 13:00 Technical visit

13:00 - 14:00 Lunch

Session: **Integrated omics – new tools and applications for crop improvement**
Chairs: Giovanni Giuliano and Giuseppe Leonardo Rotino

- 14:00 - 14:30 **Keynote talk:** Comparative genetic architecture of fruit traits in the three major Solanaceae fruit crops
Giovanni Giuliano, ENEA, Italy
- 14:30 - 14:50 CRISPR-Cas9 - mediated editing of AUCSIA2 gene induces parthenocarpic fruit development in eggplant
Giuseppe Leonardo Rotino, CREA, Italy
- 14:50 - 15:10 A worldwide eggplant core collection to study agronomically relevant traits and fruit quality-related metabolites
Luciana Gaccione, DISAFA, Plant Genetics, University of Turin, Italy
- 15:10 - 15:30 Genomic and transcriptomic dissection of resistance to *Fusarium oxysporum* f. sp. *melongenae* in the '305E40' eggplant line
Laura Toppino, CREA, Italy
- 15:30 - 16:30 **Poster session and coffee time**
Chairs: Yuling Bai and Gancho Pasev
- 16:30 - 17:00 **Keynote talk:** Exploring impaired susceptibility (S) genes in plant resistance breeding: 10 years from a concept to resistant cultivars
Yuling Bai, Wageningen University & Research, the Netherlands

- 17:00 - 17:20 Expression of anthracnose resistance genes identified in *Capsicum baccatum* 'PBC80'-derived recombinant inbred lines
Orarat Mongkolporn, Kasetsart University, Thailand
- 17:20 - 17:40 Effects of nitrogen form supply on the response to *Fusarium oxysporum* f. sp. *melongenae* in a partially resistant eggplant line
Maria Rosaria Tassone, CREA, Italy
- 17:40 - 18:00 Application of object detection and instance segmentation based on deep learning models to eggplant breeding
Motoyuki Ishimori, University of Tokyo, Japan
- 20:00 Conference dinner /Grand Hotel Plovdiv/

Thursday, September, 21st

Session: Pre-breeding and breeding – agronomic and fruit quality traits

Chairs: Ilan Paran and Derek Barchenger

- 9:00 - 9:30 **Keynote talk:** Genetic and molecular basis of pepper domestication traits
Ilan Paran, ARO, The Volcani Center, Israel
- 9:30 - 9:50 A novel global *Capsicum* core collection delivers candidate genes for robust agronomic QTLs through a multi-environment GWAS approach
Veronique Lefebvre, INRAE, GAFL, France
- 9:50 - 10:10 Bulk segregant analysis reveals candidate loci on chromosome 3 for the Inhibitor of *Phytophthora capsici* resistance (*lpcr*) gene in pepper
Derek Barchenger, World Vegetable Center, Taiwan
- 10:10 - 10:30 Microscopic and metabolic investigations disclose the factors that lead to skin cracking in chili-type pepper fruit varieties
Hagai Cohen, ARO, Volcani Institute, Israel
- 10:30 - 10:50 Clarification of genetic regulation mechanism regarding pungent traits in Japanese chili pepper 'Shishito' *Capsicum annuum*
Fumiya Kondo, Shinshu University, Japan
- 10:50 - 12:00 Poster session and coffee time



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Chairs: Jaime Prohens and Yuri Tikunov

- 12:00 - 12:20 Study of the anthocyanin related traits in photosensible (ASI-S-1) and non-photosensible (IVIA-371) cultivated eggplant varieties
Joaquin Gomis-Cebolla, COMAV, Universitat Politècnica de València, Spain
- 12:20 - 12:40 Identification of two *Capsicum* accessions resistant to the foxglove aphid *Aulacorthum solani*
T'Joen, G.A., Plant Breeding, Wageningen University and Research; the Netherlands
- 12:40 - 13:00 Genetics underlying flavonoid variation in pepper fruit
Yury Tikunov, Wageningen University and Research, the Netherlands
- 13:00 - 14:30 **Lunch break**
- 14:30 - 14:50 Evaluation of three sets of advanced backcrosses of eggplant and their recurrent parents under low N fertilization conditions
Gloria Villanueva, COMAV, Universitat Politècnica de València, Spain
- 14:50 - 15:10 Identification of *SmAPRR2* and *SmGLK2* as genes underlying chlorophyll distribution in the eggplant fruit peel
Andrea Arrones, COMAV, Universitat Politècnica de València, Spain
- 15:10 - 15:30 Role of fruit cuticle in *Colletotrichum* infection
Kietsuda Luengwilai, Kasetsart University, Thailand
- 15:30 - 15:50 Utilization of the *titi* gene enables lying down the pepper crop during long cycle greenhouse cultivation
Gábor Csilléry, PepGen Ltd., Hungary
- 15:50 - 16:30 **Poster session and coffee time**

Session: **Breeding for ornamental/urban gardens and organic systems**

Chair: Ivanka Tringovska

- 16:30 - 16:50 The use of *titi* and *Pcx* genes during the breeding of hanging ornamental "ampolna" type pepper varieties
Gábor Csilléry, PepGen Ltd., Budapest, Hungary
- 16:50 - 17:10 Awarding best oral presentation and best poster
- 17:10 - 17:30 Closure and next meeting announcement

POSTER SESSIONS

- P 1 Title: RECUPEVO: A multidisciplinary taskforce for the recovery and valorization of the “Voghera” pepper landrace**
Authors: Toppino, L.*[1], Sala, T.[1], Losa, A.[1], Tassone, M.R.[1], Fibiani, M.[2], LoScalzo, R.[2], Picchi, V.[2], Martufi, G.[2], Tripodi, P.[3], Gattolin, S.[4], Zefelippo, M.[5], Olezza, A.[6], Balestrazzi, A.[7], Mancovei, A.[7], Pagano, A.[7], Genone, A.[7], Ferrari, F.[8], Rossi, G.[8], Rotino, G.L.[1].
- P 2 Title: Genetic Background of Lilac Colouration in Pepper Fruits (*Capsicum annuum* L.)**
Authors: Kovács, Zs.*[1], Pápai, B.[1], Csilléry, G.[2], Veres, A.[1], Szóke, A.[1]
- P 3 Title: Assessment of Balkan pepper (*Capsicum annuum* L.) accessions for pest resistance, agronomic and fruit quality traits**
Authors: Todorova, V.*[1], Yankova, V. [1], Tringovska, I. [1], Markova, D. [2], Nankar A.N. [3]
- P 4 Title: Improving the quality of capsicum collection through mutation breeding and supporting molecular technology**
Authors: Tomlekova, N. [1]
- P 5 Title: Screening Balkan pepper (*Capsicum Annuum* L.) collection for fruit quality**
Authors: Tringovska, I.*[1], Todorova, V.[1], Grozeva, S.[1], Stoeva, V.[1], Asenova, V.[1], Nankar, A.N.[2], Kostova, D.[2]
- P 6 Title: Elemental profiling of pepper fruits of Balkan *Capsicum Annuum* L. collection**
Authors: Tringovska, I.*[1], Todorova, V.[1], Grozeva, S.[1], Stoeva, V.[1], Asenova, V.[1], Nankar, A.N.[2], Kostova, D.[2]
- P 7 Title: Field trials and Evaluation for European Evaluation Network for pepper accessions in the Armenia**
Authors: Sarikyan K.M., Grigoryan M.G., Shaboyan G.G., Martirosyan G.S.
- P 8 Title: Adaptability Evaluation Trial of Bulgarian Pepper in South Korea**
Authors: Amol N. Nankar [1], Velichka Todorova [2], Doyeon Jeon [3], Yoonhee Seo [3], Seonghoe Jang [3], Ivanka Tringovska [2], and Dimitrina Kostova [1]
- P 9 Title: *In vitro* analysis and micropropagation of the *tti* (tortuous internode) *Capsicum annuum* plants**
Authors: Pápai, B.*[1], Kovács, Zs.[1], Csilléry, G.[2], Szóke, A.[1], Veres, A.[1]

P 10 Title: Pepper Fruits – Consumer Preferences in Serbia

Authors: Danojević, D.*[1], Glogovac, S.[1], Moravčević, Đ.[2], Medić-Pap, S.[1]

P 11 Title: Results during the last 20 years and priorities in the future breeding and research work with pepper (*Capsicum annuum* L.) at Maritsa Vegetable Crops Research Institute

Authors: Todorova, V.*[1]

P 12 Title: Effects of direct seeding and transplanting on yield and fruit characteristics of hot chili paprika (*Capsicum annuum* L.)

Authors: Timár, Z.*[1], Dunai, L. [2], Palotás, Gabriella[1], Ács, D.[1], Pék, Z.[3], Palotás, Gábor[1]

P 13 Title: Capsaicinoids and phytochemical content of the recovering sweet pepper “Voghera” landrace

Authors: Martufi, G. [1], Lo Scalzo, R.[1], Picchi, V.[1], Tassone, M.R.[2], Toppino, L.[2], Fibiani, M.*[1]

P 14 Title: Identifying candidate genes for the prickliness trait in eggplant using an introgression breeding approach

Authors: Alonso, D.*[1], Martínez-López, M. [1], Arrones, A.[1], Gimeno-Páez, E.[1], Gramazio, P.[1], Plazas, M.[1], Prohens, J.[1] and Vilanova, S.[1]

P 15 Title: Quality traits evaluation of experimental hybrids between Spanish traditional peppers (*Capsicum annuum* L.) and a resistance virus (L4 and Tsw) breeding line under organic farming

Authors: Jiménez-Pérez, M.*[1], Adalid-Martínez, A.M.[1], Moreno-Peris, E.[1], Fita, A.[1], Rodríguez-Burruezo, A.[1]

P 16 Title: Study of Spanish wax peppers (*Capsicum annuum* L.) and their experimental hybrids under organic conditions

Authors: Jiménez-Pérez, M. [1]*, Moreno-Peris, E.[1], Adalid-Martínez, A.M.[1], Fita, A.[1], Rodríguez-Burruezo, A.[1]

P 17 Title: Morphological characterization of anther-derived pepper lines (*Capsicum annuum* L.)

Authors: Ivanova, Zh.*[1], Grozeva, S.[1], Todorova, V.[1]


P 18 Title: Preliminary field evaluation of BC₁F₂ and BC₂ pepper lines originating from local cultivars

Authors: Pashkoulova, V.*[1], Pasev, G. [1], Radeva-Ivanova, V. [1]

P 19 Title: The effects of open sun drying and oven drying on dried fruit quality characteristics in pure lines developed for dried pepper breeding

Authors: Cafer Doğanlar [1] G. Elif Vural [1] Ali Kün [1] Sinan Zengin [1] Leyla Öztürk Akar [1] Özge Meral [1] Ş. Şebnem Ellialtıoğlu [2]

- P 20 Title: Evaluation of morphological characteristics of Capia Pepper using physical mutagenesis**
Authors: Arjana Ylli 1*, Laura Binxhia 1 and Fotion Mitrushi 2
- P 21 Title: Determination of capsaicin, tocopherols and phenolics acids in different chilli cultivars by High Performance Liquid Chromatography (HPLC)**
Authors: Saraye Banumaty [1], Waligorski Piotr [2], Czyczyło-Mysza Ilona [2], Jankowicz- Cieslak Joanna Beata [3]
- P 22 Title: Screening of pepper (*Capsicum annum* L.) genotypes for response to pathogens and pests under conditions of conventional and organic field production**
Authors: Vasileva, K. *[1], Yankova, V.[1], Todorova, V.[1], Masheva, S.[1]
- P 23 Title: Identification of QTLs in eggplant introgression lines under irrigated and water-stressed conditions**
Authors: Flores-Saavedra, M. *[1], Gramazio, P.[1], Vilanova, S.[1], Mircea, D.M.[1,2], Ruiz-González M.X.[1], Vicente, O.[1], Prohens, J.[1], Plazas, M.[1]
- P 24 Title: Current status of pepper viruses in Bulgaria**
Authors: Pasev, G. *[1], Radeva-Ivanova, V.[1], Nankar, A.[2], Kostova, D.[2]
- P 25 Title: *In vitro* anther culture for development of double haploids for resistance to Cucumo and tobamoviruses**
Authors: Grozeva, S. *[1], Pasev, G.[1], Radeva-Ivanova, V.[1], Pashkoulova, V.[1], Todorova, V.[1]
- P 26 Title: Evaluation of pepper core collection for resistance to *Pepper mild mottle virus***
Authors: Radeva-Ivanova, V. *[1], Pashkoulova, V.[1], Pasev, G.[1]
- P 27 Title: Growth variability in *Solanum melongena* and two wild related species under salt stress**
Authors: Ortega-Albero, N. *[1], González-Orenga, S. [2], Rodríguez-Burruezo, A.[1], Fita, A.[1]
- P 28 Title: Unraveling the quantitative pepper – *Phytophthora capsici* interplay: global assessment of isolate aggressiveness**
Authors: Guillermo Merino Martin [1][2], Anne Massire [2], Alexandre Bachellez [2], Suzan Gabriels [1], Vivianne Vleeshouwers [1], Yuling Bai [1] and Véronique Lefebvre [2]
- P 29 Title: The effect of silicone foliar fertilization on limiting the growth of stem necrosis in pepper (*Capsicum annum* L.)**
Authors: Karadzhova, N. *[1], Todorova, V. [1]

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- P 30 Title: Heterogeneity of tomato spotted wilt virus (TSWV) resistance breaking (RB) and wild type (WT) strains collected in Kecskemét from pepper cultivars homozygous or heterozygous for *Tsw* gene**
Authors: Almási, A. [1], Timár, Z.*[2], Palotás, G.[2] and Salánki, K.[1]
- P 31 Title: Chili pepper breeding with *gds* gene based on tissue retention**
Authors: Timár, Z.[1], Palotás, Gábor*[1], Palotás, Gabriella[1], Csilléry, G.[2], Szarka, J.[3]
- P 32 Title: Comparative evaluation of resistance to tomato spotted wilt virus in pepper with CAPS molecular marker and simple probe (FRET Technology) in Real time PCR**
Authors: Ayse Kahraman [1] Seyfullah Binbir [1]
- P 33 Title: The Biostimulant Super Fifty Prime® Enhances the Yield in Eggplant and Pepper**
Authors: Nikola S. Staykov¹, Aakansha Kanojia¹, Manuela Stoyanova and Tsanko S. Gechev^{1,2}
- P 34 Title: Evaluation of different culture media for regeneration of pepper through direct organogenesis and ploidy analysis**
Authors: Martínez-López, M.*[1], García-Pérez, A.[2], Gimeno-Páez, E.[1], Prohens, J.[1], Vilanova, S.[1], García-Forteza, E.[2]
- P 35 Title: Whole-genome resequencing of the eight peppers (*Capsicum annum* L.) accessions founding a novel MAGIC population**
Authors: Martina, M. [1], Gianoglio, N. [2], Barchi, L. [1], Milanese, C.[2], Acquadro, A.[1], Portis, E.*[1]
- P 36 Title: Impact of coverage depth on SNP discovery in eggplant: Recommendations for a skim whole genome sequencing pipeline**
Authors: Baraja-Fonseca, V. [1], Arrones, A. [1], Vilanova, S. [1], Plazas, M. [1], Prohens, J. [1], Bombarely, A. [2], Gramazio, P.*[1]
- P 37 Title: Optimization of a CRISPR/Cas *Agrobacterium*-mediated protocol in eggplant**
Authors: Martínez-López, M.[1], Arrones, A.[1], Vilanova, S [1], Plazas, M [1], Prohens, J.[1], Gramazio, P.*[1]
- P 38 Title: Insecticidal activity of some botanical products against green peach aphid (*Myzus persicae* Sulzer) and thrips (*Thrips tabaci* Lindeman, *Frankliniella occidentalis* Perg.) in greenhouse pepper production**
Authors: Yankova V.[1], Markova D.[2], Todorova V.[1]
- P 39 Title: A new miniature dwarf eggplant as a potential ornamental and model plant**
Authors: Plazas, M.*[1], Martínez-López, M.[1], García-Forteza, E.[1], Gramazio, P.[1], Prohens, J.[1], Vilanova, S.[1]