

8th International Conference on Duckweed Research and Applications

28 September – 2 October 2026

Department of Agricultural Sciences
University of Napoli Federico II · Portici, Italy

PROGRAMME

MONDAY 28 SEPTEMBER 2026

Registration and Poster Hanging · Sala Cinese

14:00–15:30

Welcome & Institutional Greetings · Sala Cinese

15:30–16:30

Honorary Session — Elias Landolt centenary

16:30–17:10

Sala Cinese · Conveners: Laura Morello

16:30 Elias Landolt (1926 – 2013), father of modern duckweed research
Prof. APPENROTH, Klaus J.

Guided Visit to the Royal Palace of Portici · MUSA / Botanical Garden

17:10–18:40

Apericena · Botanical Garden

18:40–20:40

TUESDAY 29 SEPTEMBER 2026

Cell Biology, Physiology & Metabolisms: Invited Lecture

08:30–09:00

Sala Cinese · Conveners: Asaph Aharoni

08:30 Living on Less: Miniaturization in Duckweed

Dr. BISHOPP, Anthony

Cell Biology, Physiology & Metabolisms I

09:00–10:30

Sala Cinese · Conveners: Asaph Aharoni

09:00 Trophic Diversity in Duckweed: Mixotrophy, More Than the Sum of its Extremes

Prof. HOU, Hongwei

09:15 From Duckweed Stress Physiology to D-Amino Acid Signaling: Insights Across Biological Kingdoms

MONSELISE, Dr Edna Ben-Izhak

09:30 *Lemna trisulca*: Contribution to the Progress in Understanding the Mechanism of Chloroplast Movements

Prof. GABRYS, Halina

09:45 DWARPH: An Open Source, scalable platform for High-Throughput Environmental response mapping in Duckweed

Mr. MARKUS DAHL, Lauritsen

10:00 Single-nuclei transcriptomics reveals a novel frond nutrient-uptake cell type in duckweeds

Dr. WARE, Alexander*

10:15 6-Benzylaminopurine modulates photosynthetic performance and cytokinin homeostasis in *Lemna minor* under salt stress

Prof. PERŠIĆ, Vesna

Coffee Break · Sala Cinese

10:30–11:00

Cell Biology, Physiology & Metabolisms II

11:00–12:30

Sala Cinese · Conveners: Adelaide Iannelli

11:00 Development of bioluminescence reporter systems using duckweed plants

Prof. OYAMA, Tokitaka

11:15 A Novel Workflow for Deep Metabolome Annotation and Interpretation in *Lemna minor*

Dr. ZHANG, MI

11:30 A ABA-induced triacylglycerol accumulation and lipid remodeling in *Lemna minor* toward metabolic engineering of duckweed

YAMAOKA, Yasuyo

11:45 A complete seed-to-seed cycle beyond vegetative propagation reveals seed development and triacylglycerol mobilization in *Lemna aequinoctialis*

JE, Sujeong

12:00 Engineering a complex plant biosynthetic pathway in the giant duckweed

HUBER, Meret

12:15 Duckweed Nanoparticles Mediate Bioactive Lipid Trafficking

Dr. POLIKOVSKY, Mark

Light Lunch · Sala Cinese

12:30–14:00

Genes, Genomes & Evolution: Invited Lecture

Sala Cinese · Conveners: Alexander Ware

14:00–14:30

Genes, Genomes & Evolution I

Sala Cinese · Conveners: Alexander Ware

14:30–15:30

14:30 Duckweeds – an example for evolution in flux
Prof. SCHUBERT, Ingo

14:45 Transcriptomic and Epigenetic Insights into Flowering and Sexual Reproduction in *L. aequinoctialis*
Dr. MATEO-ELIZALDE, Cristian

15:00 Building a Spatial and Transcriptomic Framework for Transcription Factor Regulation in *Wolffia australiana*
Dr. COX, Kevin

15:15 The Impact of Polyploidy and Hybridization on Gene Expression in Duckweeds
CROMBEZ, Ewout

Sponsor presentation: Phenovation

Sala Cinese · Conveners: Vincent Jalink

15:30–15:45

Coffee Break · Sala Cinese

15:45–16:15

Genes, Genomes & Evolution II

Sala Cinese · Conveners: Ingo Schubert

16:15–17:00

16:15 *Wolffia arrhiza*: A Cryptic Species Complex within the Genus *Wolffia*
Dr. STEPANENKO, Anton

16:30 On the Way to Domesticate Duckweeds: Hidden Sexuality, Hybridization and Polyploid Evolution
Dr. LEE, Yuri

16:45 Investigating the secondary loss of auxin signalling components in duckweed
Dr. SMITH, Claire

Poster Session · Sala Monumentini

17:15–18:30

Pizza Night · Sala Cinese

18:30–21:00

WEDNESDAY 30 SEPTEMBER 2026

Microbiome & Interactions: Invited Lecture

08:45–09:15

Sala Cinese · Conveners: Tokitaka Oyama

- 08:45** Constructing designer duckweed holobionts for comprehensive analyses of plant-microbe interactions
Prof. LAM, Eric

Microbiome & Interactions I

09:15–10:15

Sala Cinese · Conveners: Tokitaka Oyama

- 09:15** Vitamin B₁₂ Accumulation in Duckweed Emerges from a Cooperative, Environmentally Responsive Microbiome
Prof. GILLOR, Osnat
- 09:30** Potential cobalamin-producing *Wolffia globosa*-associated microbiome
Prof. THAMCHAIPENET, Arinthip
- 09:45** Microbiome Assembly and Transmission Across the Turion–Vegetative Growth Cycle in *Spirodela polyrhiza*
PRUDOT D'AVIGNY, François
- 10:00** Why Algal Blooms Suppress Duckweed Growth: Mechanisms Behind Growth Inhibition
Prof. SZABO, Sandor

Coffee Break · Sala Cinese

10:15–10:45

Ecology & Diversity: Invited lecture

10:45–11:15

Sala Cinese · Conveners: Laura Morello; Manuela Bog

- 10:45** Duckweeds as models for understanding evolution in ecological communities and floral diversity
XU, Shuqing

Ecology & Diversity I

11:15–12:45

Sala Cinese · Conveners: Manuela Bog

- 11:15** Plasticity and Adaptation of Fatty Acid Profiles in Four Lemnaceae Species under Varying Thermal and Nutrient Regimes
BOG, Manuela
- 11:30** Landolt's collection 2.0 – Valorization and Digitization of duckweed germplasm resources
MORELLO, Laura
- 11:45** Near-future warming amplifies natural heatwave impacts and reorganizes freshwater communities
Ms. NOUERE, Sara
- 12:00** The immediate impacts of whole genome duplication (neopolyploidy) in *Spirodela polyrhiza* on its functional traits and competitive outcomes.
Prof. TURCOTTE, Martin
- 12:15** The *Wolffia* effect: from biological to physical anchoring — meniscus engineering in a rootless duckweed
Dr. ROMANO, Leone Ermes

Light Lunch · Sala Cinese

12:45–14:00

Plenary lecture

Sala Cinese · Conveners: Leone Ermes Romano

14:00–14:45

Excursion to Herculaneum Archaeological Site

14:45–17:45

Applications — food, feed & nutrition: Invited Lecture

08:30–09:00

Sala Cinese · Conveners: Marcel A.K. Jansen

- 08:30** Circular Feed Innovations for Sustainable Aquaculture and Blue Transformation
Mr. TOPPE, Jogeir

Applications I a — food, feed & nutrition

09:00–10:30

Sala Cinese · Conveners: Marcel A.K. Jansen

- 09:00** High quality and quantity duckweed biomass production & protein, starch biosynthesis
Prof. ZHAO, Hai
- 09:15** Optimising Lemna cultivation for food applications
Dr. VAN DER MEER, Ingrid
- 09:30** Growing duckweed indoors: how cultivation conditions and management strategies modulate productivity and nutritional quality - A systematic review
DEMARIA, Sara
- 09:45** Non-invasive estimation of duckweed biomass quality can be achievable by spectral signatures
Mr. OLÁH, Viktor
- 10:00** High-Throughput Non-Destructive Prediction of Duckweed Protein Content Using Hyperspectral Imaging and Deep Learning
Dr. HUANG, Weijuan
- 10:15** AI-Driven Virtual Screening of Lemna minor Phenolic Compounds in the Search for Novel Glycemic Control Agents
Mrs. ALVES, Felipe

Coffee Break · Sala Cinese

10:30–11:00

Applications I — food, feed & nutrition: Invited Lecture

11:00–11:30

Sala Cinese · Conveners: Eric Lam

- 11:00** From Traditional Food to Emerging Industry: The Rise of Wolffia in Thailand
Dr. MEETAM, Metha

Applications I b — food, feed & nutrition

11:30–12:30

Sala Cinese · Conveners: Eric Lam

- 11:30** Fog-o-ponics; a novel duckweed cultivation method
Prof. JANSEN, Marcel A.K.
- 11:45** Comparison of Ultrasound- and Pulsed Electric Field-Assisted Protein Extraction from fresh Lemna minor: Process Evaluation and Functional Characterization
Ms. MAAG, Patricia
- 12:00** UHPLC-MS/MS profiling and biological activities of phenolic compounds from three duckweed species for the identification of potential health-promoting biomolecules
Mr. UJONG, Anim

12:15 Synergistic Nutrient Formulations and Thermal Drying Strategies for Enhanced Duckweed Nutrition
Dr. CHAN, Derek Juinn Chieh

Light Lunch · Sala Cinese

12:30–14:00

Applications II — wastewater & remediation

14:00–15:30

Sala Cinese · Conveners: Viktor Oláh

14:00 Tripartite Synergy in a Baffled Duckweed Reactor for 2-Chloro-4-Nitroaniline Remediation: Metabolic Pathways, Microbial Dynamics, and Biochar Valorization
Prof. TAWFIK, Ahmed

14:15 Exploring Duckweed for Remediation of, and Resource Recovery from Industrial Fish Filleting WasteWater
Ms. KATSARA, Alexandra

14:30 Group therapy: Macrophyte polyculture of Lemna species and Azolla filiculoides for the optimized remediation of meat processing wastewater
Ms. CHEN, Jingrou

14:45 BIOACCUMULATION AND PHYTOTOXICITY OF IONIC RARE EARTH ELEMENTS (CERIUM, NEODYMIUM, SAMARIUM) IN LEMNA GIBBA
Dr. KOLESZÁR, Gergő

15:00 Dried Duckweed Biomass as a Boron-Binding Soil Amendment Produced through Nutrient Recovery from Agricultural Drainage Water
Dr. KUTMAN, Umit Baris

15:15 Integrating Duckweed into a Chain of Brine Reuse Enhancing the Value of Desalination for Food Production: The Case of Somalia
Prof. ORON, Gideon

Group Photo · Sala Cinese

15:30–16:00

Coffee Break · Sala Cinese

16:00–16:30

Applications IV — Round Table (challenges and opportunities of duckweed as novel crops)

16:30–18:00

Sala Cinese · Conveners: Metha Meetam

Conference Dinner · Sala Cinese

18:30–21:30

Applications III — Biotech

Sala Cinese · Conveners: Olena Kishchenko

08:30–09:15

- 08:30** Duckweed as a platform for oral vaccines in sustainable fish aquaculture
Dr. KISHCHENKO, Olena
- 08:45** Towards a subunit oral vaccine to Newcastle disease in transgenic duckweeds
Dr. VUNSH, Ron
- 09:00** Recombinant Expression of Silk Sericin in Duckweed (*Lemna japonica*) as a Sustainable Platform for Functional Biomaterial Production
Ms. FORTMUELLER, Julia Eva

Poster session

Sala Monumentini

09:15–10:45

- P01** Understanding Flowering in Lemna
Dr. LINCOLN, Anne
- P02** Optimizing agitation rate and hydraulic retention for wastewater remediation by Lemna species and Azolla filiculoides
CHEN, Jingrou
- P03** Bioremediation of African catfish (*Clarias gariepinus* (Burchell, 1822)) recirculating aquaculture system process water with duckweed Lemna minor L. (9440)
Mr. SONNENFELD, Alexej
- P04** Vegetable Protein from Edible Aquatic Plants: Safe, Sustainable Production and Resilience Against Climate Change
Dr. CAROCHO, Marcio
- P05** Insights into flowering induction and reproductive development in duckweeds
Dr. IANNELLI, MARIA ADELAIDE
- P06** Cobalt-Driven Restructuring of the Duckweed Endophytic Microbiome Enhances Bioavailable Vitamin B₁₂
Ms. RISHMAWI, Dalia
- P07** Investigating siRNA-mediated silencing in duckweeds, a potential model for translational repression in plants
Dr. DIEZMA-NAVAS, Laura
- P08** Integrating Duckweed into a Chain Brine Users: Enhancing the value of Desalination Byproducts
Prof. ORON, Gideon
- P09** Transcriptomic and morphological responses to salt stress in *Wolffia australiana*
HENRY, Caroline
- P10** Physiological and Transcriptomic Responses of *Spirodela polyrhiza* to Distinct Colonization Strategies by Plant Growth-Promoting Bacteria
RUENPHAM, Karnjana
- P11** Duckweed production at an IMTA system in Ireland
MARGOT, Clair
- P12** Haplotype-resolved genome assembly and single-nucleus sequencing provide insights into the simplest flower development in *Wolffia microscopica*
CHAKRABORTY, Abhisek
- P13** Dietary supplementation with Lemna minor mitigates the metabolic alterations induced by ingestion of PLA nanoplastic in a rat model
Dr. LOMBARDI, Martina; Prof. VIGGIANO, Andrea

P14	Pollination and seed development in <i>Lemna aequinoctialis</i> <i>Ms. KOLEHMAINEN, Anna</i>
P15	Direct and indirect effects of snail herbivory on <i>Spirodela polyrhiza</i> in a two-year outdoor experiment <i>SCHÄFER, Martin</i>
P16	Modulation of silver nanoparticle phytotoxicity by surface coating and microplastic co-exposure in <i>Lemna minor</i> <i>Dr. VITKO, Sandra</i>
P17	Intra-specific variation in growth and photosynthetic responses of duckweed <i>Lemna gibba</i> to manganese <i>Mr. ABEBAW, Amare Fassil</i>
P18	Cellular-level visualization of salinity stress responses in <i>Wolffia australiana</i> <i>SUSSMAN, Hayley</i>
P19	Small RNA biogenesis in Duckweeds <i>Mr. KRASNOVID, Filipp</i>
P20	Application of duckweed as an organic amendment for food production. <i>MANYENGA, Natasha</i>
P21	Towards a Zero-Waste Duckweed Biorefinery: Pulse Electric Field and High-Pressure Assisted Fractionation for Enhanced Recovery of Functional Ingredients <i>Mr. UJONG, Anim</i>
P22	A Trait Lost for Millions of Years: Investigating the Loss of Root Hairs in Duckweed <i>Ms. FAIRBURN, Rebecca</i>
P23	How Long Do Plants Remember? Transgenerational Stress Memory in a Duckweed-Aphid System <i>DINIZ RODRIGUES BATISTA, Enrico</i>
P24	Species-Specific Growth Inhibition by Extracellular Self-DNA in a Two-Species Duckweed Community and Its Association with Oxidative Stress <i>SANJAYA, Wilhelmus Terang Arga</i>
P25	Self-DNA Effects on Growth, Oxidative Stress, and Nutritional Quality of <i>Lemna perpusilla</i> : In Vitro <i>SILVANO, Jesis</i>
P26	Sustainable Commercialization of Duckweed Production in Malaysia <i>Dr. CHAN, Derek Juinn Chieh</i>
P27	Comparison of imaging methods for RGR determination and early stress detection in <i>Lemna minuta</i> grown on buffalo wastewater <i>Dr. GIULIANO, Alberto</i>
P28	Assessment of field-grown duckweed biomass by spectral indices <i>Ms. SZILÁGYI, Dóra; Mr. OLÁH, Viktor</i>
P29	Clone-dependent germination and post-dormancy growth of ABA-induced turions in <i>Spirodela polyrhiza</i> <i>Ms. AMRI, Raja</i>
P30	Transgenic <i>Spirodela polyrhiza</i> and <i>Lemna minor</i> for Oral Delivery of Highly Glycosylated Human Interferon Alpha-2b <i>PROKHOROVA, Yelizaveta</i>
P31	Marked Inter- and Intraspecific Duckweed Diversity Enables Selection of More Suitable Genotypes for the Valorization of Raw Dairy-wastewater <i>Dr. PERNA, Cristian</i>

Coffee Break · Sala Cinese

10:45–11:15

Award ceremony

11:15–12:30

Sala Cinese · Conveners: Klaus J. Appenroth; Laura Morello; Leone Ermes Romano

Light Lunch · Sala Cinese

12:30–14:00

General Assembly, Commemorative tribute to K. Appenroth & Closing Ceremony

14:00–16:00

Sala Cinese · Conveners: Sowjanya Sree Kandregula; Marcel A.K. Jansen; Asaph Aharoni; Klaus J. Appenroth; Leone Ermes Romano; Laura Morello; Eric Lam