8th International Conference on Duckweed Research and Applications

28 September – 2 October 2026

Royal Palace of Portici, 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 · Convener: Laura Morello

16:30 Elias Landolt (1926 – 2013), father of modern duckweed research
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 · Convener: Asaph Aharoni

08:30 Living on less: miniaturization in duckweed
BISHOPP, Anthony

Cell Biology, Physiology & Metabolisms I — 09:00–10:30

Sala Cinese · Convener: Asaph Aharoni

09:00 Trophic diversity in duckweed: mixotrophy, more than the sum of its extremes
hou, hongwei

09:15 From duckweed stress physiology to d-amino acid signaling: insights across biological kingdoms
MONSELISE, Edna Ben-Izhak

09:30 *Lemna trisulca*: contribution to the progress in understanding the mechanism of chloroplast movements
GABRYS, Halina

09:45 DWARPH: an open source, scalable platform for high-throughput environmental response mapping in duckweed
MARKUS DAHL, Lauritsen

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

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

Coffee Break · Sala Cinese — *10:30–11:00*

Cell Biology, Physiology & Metabolisms II — 11:00–12:30

Sala Cinese · Convener: Maria Adelaide Iannelli

11:00 Development of bioluminescence reporter systems using duckweed plants
OYAMA, Tokitaka

11:15 A novel workflow for deep metabolome annotation and interpretation in *Lemna minor*
ZHANG, Mi

11:30 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
POLIKOVSKY, Mark

Light Lunch · Sala Cinese *12:30–14:00*

Genes, Genomes & Evolution: Invited Lecture — 14:00–14:30

Sala Cinese · Convener: Alexander Ware

14:00 Small meets smaller: rewiring small RNA silencing in duckweeds
MARÍ-ORDÓÑEZ, Arturo

Genes, Genomes & Evolution I — 14:30–15:30

Sala Cinese · Convener: Alexander Ware

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

14:45 Transcriptomic and epigenetic insights into flowering and sexual reproduction in *L. aequinoctialis*
MATEO-ELIZALDE, Cristian

15:00 Building a spatial and transcriptomic framework for transcription factor regulation in *Wolffia australiana*
COX, Kevin

15:15 The impact of polyploidy and hybridization on gene expression in duckweeds
CROMBEZ, Ewout

Sponsor Presentation: Phenovation — 15:30–15:45

Sala Cinese · Convener: Vincent Jalink

Coffee Break · Sala Cinese *15:45–16:15*

Genes, Genomes & Evolution II — 16:15–17:00

Sala Cinese · Convener: Ingo Schubert

16:15 *Wolffia arrhiza*: a cryptic species complex within the genus *Wolffia*
STEPANENKO, Anton

16:30 On the way to domesticate duckweeds: hidden sexuality, hybridization and polyploid evolution
LEE, Yuri

16:45 Investigating the secondary loss of auxin signalling components in duckweed
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 · Convener: Tokitaka Oyama

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

Microbiome & Interactions I — 09:15–10:15

Sala Cinese · Convener: Tokitaka Oyama

09:15 Vitamin B12 accumulation in duckweed emerges from a cooperative, environmentally responsive microbiome
GILLOR, Osnat

09:30 Potential cobalamin-producing *Wolffia globosa*-associated microbiome
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
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 · Convener: 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
NOUERE, Sara

12:00 The immediate impacts of whole genome duplication (neopolyploidy) in *Spirodela polyrhiza* on its functional traits and competitive outcomes.
TURCOTTE, Martin

12:15 The *Wolffia* effect: from biological to physical anchoring — meniscus engineering in a rootless duckweed
ROMANO, Leone Ermes

Light Lunch · Sala Cinese *12:45–14:00*

~~Plenary Lecture~~ 14:00–14:45

Sala Cinese · Convener: Leone Ermes Romano

~~14:00~~ ~~MARTIENSSEN, Robert~~

Excursion to Herculaneum Archaeological Site *14:45–17:45*

THURSDAY 01 OCTOBER 2026

Applications — Food, Feed & Nutrition: Invited Lecture
08:30–09:00

Sala Cinese · Convener: Marcel A.K. Jansen

08:30 Circular Feed Innovations for Sustainable Aquaculture and Blue Transformation
TOPPE, Jogeir

Applications I a — Food, Feed & Nutrition
09:00–10:30

Sala Cinese · Convener: Marcel A.K. Jansen

09:00 High quality and quantity duckweed biomass production & protein, starch biosynthesis
ZHAO, Hai

09:15 Optimising *Lemna* cultivation for food applications
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
OLÁH, Viktor

10:00 High-Throughput non-destructive prediction of duckweed protein content using hyperspectral imaging and deep learning
HUANG, Weijuan

10:15 AI-Driven virtual screening of *Lemna minor* phenolic compounds in the search for novel glycemic control agents
ALVES, Felipe

Coffee Break · Sala Cinese *10:30–11:00*

Applications I — Food, Feed & Nutrition: Invited Lecture
11:00–11:30

Sala Cinese · Convener: Eric Lam

11:00 From traditional food to emerging industry: the rise of *Wolffia* in Thailand
MEETAM, Metha

Applications I b — Food, Feed & Nutrition
11:30–12:30

Sala Cinese · Convener: Eric Lam

11:30 Fog-o-ponics; a novel duckweed cultivation method
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
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
UJONG, Anim

12:15 Synergistic nutrient formulations and thermal drying strategies for enhanced duckweed nutrition
CHAN, Derek Juinn Chieh

Light Lunch · Sala Cinese *12:30–14:00*

Applications II — Wastewater Remediation 14:00–15:30

Sala Cinese · Convener: Viktor Oláh

14:00 Tripartite synergy in a baffled duckweed reactor for 2-Chloro-4-Nitroaniline remediation: metabolic pathways, microbial dynamics, and biochar valorization
TAWFIK, Ahmed

14:15 Exploring duckweed for remediation of, and resource recovery from industrial fish filleting wastewater
KATSARA, Alexandra

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

14:45 Bioaccumulation and phytotoxicity of ionic rare earth elements (Cerium, Neodymium, Samarium) in *Lemna gibba*
KOLESZÁR, Gergő

15:00 Dried duckweed biomass as a Boron-binding soil amendment produced through nutrient recovery from agricultural drainage water
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
ORON, Gideon

Group Photo · Sala Cinese *15:30–16:00*

Coffee Break · Sala Cinese *16:00–16:30*

Applications IV — Round Table (challanges and opportunities of duckweed as novel crops) 16:30–18:00

Sala Cinese · Convener: Metha Meetam

Conference Dinner · Sala Cinese *18:30–21:30*

FRIDAY 02 OCTOBER 2026

Applications III — Invited Talk
08:30–09:00

Sala Cinese · Convener: Olena Kishchenko

08:30 Antinutritives in duckweeds
SREE, K. Sowjanya

Applications III — Biotech
09:00–09:45

Sala Cinese · Convener: Olena Kishchenko

09:00 Duckweed as a platform for oral vaccines in sustainable fish aquaculture
KISHCHENKO, Olena

09:15 Towards a subunit oral vaccine to Newcastle disease in transgenic duckweeds
VUNSH, Ron

09:30 Recombinant Expression of Silk Sericin in Duckweed (*Lemna japonica*) as a Sustainable Platform for Functional Biomaterial Production
FORTMUELLER, Julia Eva

Poster session
09:45–10:45

Sala Monumentini

P01 Understanding Flowering in *Lemna*
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)
SONNENFELD, Alexej

P04 Vegetable protein from edible aquatic plants: safe, sustainable production and resilience against climate change
CAROCHO, Marcio

P05 Insights into flowering induction and reproductive development in duckweeds
IANNELLI, Maria Adelaide

P06 Cobalt-driven restructuring of the duckweed endophytic microbiome enhances bioavailable vitamin B12
RISHMAWI, Dalia

P07 Investigating siRNA-mediated silencing in duckweeds, a potential model for translational repression in plants
DIEZMA-NAVAS, Laura

P08 Integrating duckweed into a chain brine users: enhancing the value of desalination byproducts
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
LOMBARDI, Martina; VIGGIANO, Andrea

P14 Pollination and seed development in *Lemna aequinoctialis*
KOLEHMAINEN, Anna

P15 Direct and indirect effects of snail herbivory on *Spirodela polyrhiza* in a two-year outdoor experiment
SCHÄFER, Martin

P16 Modulation of silver nanoparticle phytotoxicity by surface coating and microplastic co-exposure in *Lemna minor*
VITKO, Sandra

P17 Intra-specific variation in growth and photosynthetic responses of duckweed *Lemna gibba* to manganese
ABEBAW, Amare Fassil

P18 Cellular-level visualization of salinity stress responses in *Wolffia australiana*
SUSSMAN, Hayley

P19 Small RNA biogenesis in Duckweeds
KRASNOVID, Filipp

P20 Application of duckweed as an organic amendment for food production.
MANYENGA, Natasha

P21 Towards a zero-waste duckweed biorefinery: pulse electric field and high-pressure assisted fractionation for enhanced recovery of functional ingredients
UJONG, Anim

P22 A trait lost for millions of years: investigating the loss of root hairs in duckweed
FAIRBURN, Rebecca

P23 How long do plants remember? transgenerational stress memory in a duckweed-aphid system
DINIZ RODRIGUES BATISTA, Enrico

P24 Species-specific growth inhibition by extracellular self-DNA in a two-species duckweed community and its association with oxidative stress
SANJAYA, Wilhelmus Terang Arga

P25 Self-DNA effects on growth, oxidative stress, and nutritional quality of *Lemna perpusilla*: in vitro
SILVANO, Jesis

P26 Sustainable commercialization of duckweed production in Malaysia
CHAN, Derek Juinn Chieh

P27 Comparison of imaging methods for RGR determination and early stress detection in *Lemna minuta* grown on buffalo wastewater
GIULIANO, Alberto

P28 Assessment of field-grown duckweed biomass by spectral indices
SZILÁGYI, Dóra; OLÁH, Viktor

P29 Clone-dependent germination and post-dormancy growth of ABA-induced turions in *Spirodela polyrhiza*
AMRI, Raja

P30 Transgenic *Spirodela polyrhiza* and *Lemna minor* for oral delivery of highly glycosylated human Interferon Alpha-2b
PROKHOROVA, Yelizaveta

P31 Marked inter- and intraspecific duckweed diversity enables selection of more suitable genotypes for the valorization of raw dairy-wastewater
PERNA, Cristian

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, K.J. Appenroth Honors & 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