3rd International Symposium on the Environmental Physiology of Ectotherms and Plants

Tsukuba, Japan

2009.8.24~28
Dear Participants,

On behalf of the Local Organizing Committee of the 3rd International Symposium on the Environmental Physiology of Ectotherms and Plants it is a great honor to welcome you in Tsukuba, a city with Japanese traditions and an innovative character. Tsukuba has evolved into a major center of Japan research activities and will offer you, as ISEPEP3 participants, the opportunity to share your latest research results in an environment strongly devoted to science. You will notice that the city has an innovative spirit and offers you a great variety of leisure and recreational activities. We are very motivated to make the 3rd International Symposium on the Environmental Physiology of Ectotherms and Plants in Tsukuba an exciting and fruitful meeting for all participants.

With best wishes,

Dr. Takashi Okuda
Chairman of the Local Organizing Committee

Local Organizing Committee

Dr. Takashi Okuda (Chair),
Anhydrobiosis Research Unit, National Institute of Agrobiological Sciences.

Dr. Takahiro Kikawada,
Anhydrobiosis Research Unit, National Institute of Agrobiological Sciences.

Dr. Richard Cornette,
Anhydrobiosis Research Unit, National Institute of Agrobiological Sciences.

Sponsors

National Institute of Agrobiological Sciences
Tsukuba City
The Kao Foundation For Arts and Sciences
CONFERENCE PROGRAM at a Glance

24. Aug
9:00  Registration, Data collection & Poster setting
10:50  Opening Remarks
11:00  Plenary lecture
12:00  Lunch (complimentary)
13:00  Keynote
13:40  Oral session
15:00  Coffee/Tea break
15:20  Oral session
17:00  Welcome party (complimentary)
18:00
20:00

25. Aug
9:00  Keynote
9:40  Oral session
10:40  Coffee/Tea break
10:50  Oral session
11:00  Oral session
11:40  Conference excursion (To Sawara & Kashima shrine)
12:00  Lunch (complimentary)
12:50  Business session & Closing remarks
13:40  Oral session
15:00  Coffee/Tea break
15:20  Oral session
17:00  Poster (Coffee is served)
18:00
20:00

26. Aug
9:00  Oral session
10:40  Coffee/Tea break
10:50  Oral session
11:00  Oral session
11:40  Lunch (complimentary)
12:00  Lunch (complimentary)
13:40  Oral session
14:00  Poster (Coffee is served)
16:00
18:00
20:00

27. Aug
9:00  Oral session
10:40  Coffee/Tea break
10:50  Oral session
11:00  Oral session
11:40  Lunch (complimentary)
12:00  Lunch (complimentary)
13:40  Oral session
14:00  Poster (Coffee is served)
16:00
18:00
20:00

28. Aug
9:00  Oral session
10:40  Coffee/Tea break
10:50  Oral session
11:00  Oral session
11:40  Lunch (complimentary)
12:00  Lunch (complimentary)
13:40  Business session & Closing remarks
14:00
18:00
20:00
Information for presenters

Oral presentations

The presentations should be done using PC with a projector. Please, transmit your presentation files on flash memory or other media to our technical assistant well in advance before the beginning of the session in which you are presenting. (Preferably, one day ahead) The assistant will load the presentation file onto the computer (both Mac and PC are available). Optionally you can use your own laptop for presentation, but make an appointment with the assistant first. The presentation time is 20 min. and it will be three signals from our staff, indicating that 12, 15 and 20 min. have elapsed. Please, consider the time for questions and, ideally, finish your presentation within 15 min. Laser pointers will be provided.

Poster presentations

Posters will be on display during the whole conference, and presented during dedicated sessions. The poster sessions are scheduled for 25 August (odd numbers) and 27 August (even numbers) from 16:00 to 17:00 in Meeting Room No.2. Please, refer to the Final Program for the poster number assigned to you and use the board with the same number. Paper mounting items (e.g. pins, double-sided paper) will be provided on site. You may bring additional battery operated audio or visual aids to enhance your presentation. If you need to use additional tables or any other equipment for your poster presentation, please let the organizers know in advance.

Best Presentation Award

ISEPEP3 is offering several awards for student presenters.

Best Poster Presentation Award – This award recognizes the best poster presentation by a student.

Best Oral Presentation Award – This award recognizes excellence in the oral presentation of research by a student.

Lunch

Lunch is provided on Monday, Tuesday, Thursday and Friday and will be served in the Exhibition Room (3F).

Coffee / Tea breaks

There will be coffee / tea breaks during morning and afternoon oral sessions in Meeting Room No.2.
**Internet**

Wireless Internet connections are available for participant’s laptops. Several Internet-connected PCs will be available for participants in the Lounge.

**Tour desk (from 24\textsuperscript{th} to 25\textsuperscript{th} Aug)**

Tour desk operated by JTB (Japan Travel Bureau) is located in Meeting Room No.1. Reservation and on-site payment for Sawara & Kashiwa shrine are available up to strength. There are also various options for bus excursions in Tokyo and post-congress tours.

**Cloak**

Participants may use the cloakroom located in the Meeting Room No.1 at no cost. Working hours: 9:00-17:00 during the meeting.

**Map of Conference Rooms**
Some Useful Information about Tsukuba City

Banks and Money Exchange

Banks are generally open from 9:00am - 3:00pm, Monday through Friday. Some Automated Teller Machines (ATMs) (called cash corner in Japanese), however, are accessible during the night and on weekends, as well as on bank holidays (please, refer to the Street map of Tsukuba).

Japan has both coins (1, 5, 10, 50, 100, 500 yen) and bills (1,000, 10,000 yen). Cash is the most common form of payment, but there are some merchants who accept credit cards. Debit cards are not in common use.

Taxis

The fare for a taxi is based on the distance. The fee is 660 yen within 2km (small taxies are 640 yen). Over 2km, 80 yen is added every 279m, or 80 yen is added every 1 min. 45 sec. at the speed of less than 10 km per hour. Between 10:00 p.m. and 5:00 a.m. there is a 20% late night surcharge.

Tsukuba-Narita Airport Bus

The Airport Liner NATT’S (direct bus) leaves Tsukuba Bus Terminal (Bus Stop No. 13) for New Tokyo International Airport (Narita). It takes about one hour and 40 minutes. One-way ticket costs 2,540 yen per adult and 1,270 yen per child. While it may be possible to get a ticket on the day you travel, it is strongly recommended that you reserve your seat on this bus to avoid any mishaps. It is not necessary to make reservations when travelling from the airport to Tsukuba, but it is necessary to make reservations when travelling from Tsukuba to Narita. You can buy the tickets at the Kanto Tetsudo Gakuen Service Center (located in the Tsukuba Center Bus Terminal) or by calling the center at 0298-52-5666. You can take the bus without a reservation, but this is not recommended because you will not get a seat if the bus is already full. Please note that if you take this bus, the earliest you can arrive in Narita is 8:00 am and the latest you can leave from Narita is 20:00. If you have to catch an early flight, or if you arrive on a later flight, you may not be able to use this service.

Dealing with Emergencies

If you are involved in an accident or otherwise need help from the police, dial 110.

Call 119 for fire and ambulance.

When you call, tell the operator:

What kind of accident was it? (Traffic accident: jiko, Fire: kaji, Robbery: dorobo)

My name is John Smith: Namae wa John Smith desu.
**ISEPEP3: Program**

(*: Presentation by a student)

**Monday, August 24**

9:00 – 10:50  
Registration, Uploading of PowerPoint files and Poster setting

10:50 – 11:00  
Opening remarks

**Plenary lecture**

Chair: Takashi Okuda

11:00 – 12:00  
James S. Clegg: Cryptobiosis – 50 years on.

12:00 – 13:00  
Lunch

**Session 1: Anhydrobiosis in invertebrates-1.**  
Chair: James S. Clegg

13:00 – 13:40  
**Keynote address**—Alan Tunnaciffe: The role of hydrophilic, unstructured proteins in invertebrate anhydrobiosis.

13:40 – 14:00  
Richard Cornette: Molecular bases of anhydrobiosis in the sleeping chironomid *Polypedilum vanderplanki*.

14:00 – 14:20  
Takahiro Kikawada: Regulation of trehalose metabolism underlying rapid accumulation of trehalose in the desiccating larvae of the sleeping chironomid, *Polypedilum vanderplanki*.

14:20 – 14:40  
Oleg Gusev: Anhydrobiosis-associated changes in nuclear DNA and their effect on radioresistance in the sleeping chironomid *Polypedilum vanderplanki*.

14:40 – 15:00*  
Taku Okawa: Three-dimensional structure and dynamics of trehalose transporter TRET1 in *Polypedilum vanderplanki* as revealed by computer simulations.

15:00 – 15:20  
Coffee / Tea break

**Session 2: Anhydrobiosis in invertebrates-2.**  
Chair: Hans Ramlov

15:20 – 15:40*  
Steffen Hengherr: Vitrification and trehalose ? basic principle or speciality in few anhydrobiotes?

15:40 – 16:10*  
Elham Schokraie: Proteomic analysis of tardigrades: towards a better understanding of molecular mechanisms by anhydrobiotic organisms.;  
Comparative proteomic analysis of tardigrades in active versus anhydrobiotic stage using DIGE technology.

16:10 – 16:30  
Marcus Frohme: A systems biology approach to understand the molecular base of cryptobiosis in tardigrades.
16:30 – 16:50  Takekazu Kunieda: The tardigrade genome of an anhydrobiotic extremotolerant species, Ramazzottius varieornatus.

18:00 – 20:00  Welcome party at Restaurant ESPOIR in Tsukuba International Congress Center

Tuesday, August 25

Session 3: Osmotic and freezing tolerance in invertebrates-1. Chair: Alan Tunnacliffe

9:00 – 9:40  Keynote address—David A. Wharton: An Antarctic nematode as a model for studying the response of organisms to an extreme environment.


10:40 – 11:00  Coffee / Tea break

Session 4: Osmotic and freezing tolerance in invertebrates-2. Chair: Brent J. Sinclair


11:40 – 12:00  Martin Holmstrup: Recovery of enchytraeid populations after severe drought events.

12:00 – 13:00  Lunch

Special lecture: Chair: Takashi Okuda

13:00 – 13:40  Kazuko Yamaguchi-Shinozaki: Transcriptional regulatory network in abiotic stress response in plants.

Session 5: Cold hardiness and cryopreservation of plants. Chair: Kazuko Yamaguchi-Shinozaki

13:40 – 14:00  Masaya Ishikawa: Mechanism involved in deep supercooling of the leaves of
Trachycarpus fortunei.

14:00 – 14:20 Jiří Zámečník: Study of glass formation in plants and application in cryopreservation.


14:40 – 15:00 Mahmut S. Taspınar: Isoenzyme Patterns of Barley Genotypes in Relation to Cold Hardiness.

Session 6: Osmotic and freezing stress in insects. Chair: David A. Wharton

15:00 – 15:20 Hiroshi Takahashi: Cold adaptations in Drosophila: Fat crystallization does not cause the fly's instantaneous death, but ice formation does.


15:40 – 17:00 Poster session (odd numbers) Coffee and tea will be served.

Wednesday, August 26

Conference excursion

Thursday, August 27

Session 7: Cold hardiness in invertebrates. Chair: Vladimír Koštál

9:00 – 9:20 David Renault: Thermal fluctuations and oxygen consumption: assessing the role of oxidative stress in the development of chill injuries in insects.

9:20 – 9:40 Kazuhiro Tanaka: Adaptive significance of early morning adult eclosion in the onion fly, Delia antiqua; To avoid high mid-day soil surface temperature?.

9:40 – 10:00 Chihiro Katagiri: Tree and Alpine Wetas; their Lipids.

10:00 – 10:20 Hiroko Udaka: Heat and cold tolerance in the terrestrial slug, Lehmanna valentina: seasonal changes and the effects of photoperiod and temperature and temperature.


10:40 – 11:00 Coffee / Tea break
Session  8:  **Aquaporins & biochemistry of cold tolerance.**  
Chair: Martin Holmstrup

11:00 – 11:20  Masaaki Azuma: Physiology of Aquaporins in lepidopteran caterpillars.

11:20 – 11:40*  Benjamin N. Philip: The role of aquaporins in promoting freeze tolerance in insects.

11:40 – 12:00  Rainer Kiko: Life in cold veins: Antarctic sea-ice meiofauna.

12:00 – 13:40  Lunch

Session  9:  **Chaperones and HSP**  
Chair: Ralph O. Schill

13:40 – 14:00  Vladimír Koštál: Expression of 70 kDa heat shock proteins in the bug, *Pyrrhocoris apterus*: What is their role in cold tolerance?.

14:00 – 14:20  Maxim Timofeyev: Thermal stress defense in closely related endemic amphipods (Amphipoda, Crustacea) from contrasting environments of Lake Baikal with emphasis on HSPs and antioxidant enzymes.

14:20 – 14:40  Norman Y. S. Woo: Hormonal and metabolic responses to salinity, temperature and pathogenic stress in the seabream *Sparus sarba*.

Session 10:  **Ecotoxicology.**  
Chair: Oleg Gusev

14:40 – 15:00*  Rosario Planelló: Effects of the endocrine disruptor benzyl butyl phthalate in *Chironomus riparius* (Diptera), a model species in aquatic ecotoxicology.

15:00 – 15:20  Martin Holmstrup: Interactions between effects of thermal stress and pollution in soil invertebrates.

15:20 – 15:40  Marina M. Basova: Fish erythrocytes catecholamines as the indicator of pollution.

15:40 – 17:00  Poster session (even numbers) Coffee and tea will be served.

Friday, August 28

Session 11:  **Diapause & physiology of arthropods.**  
Chair: Hideharu Numata

9:00 – 9:20  Daria M. Martynova: Warmwater copepods in the sub-Arctic: searching for a diapause trigger.

9:20 – 9:40  Yohei Izumi: Triacylglycerols of diapausing and non-diapausing larvae of the rice stem borer, *Chilo suppressalis*; their fatty acid composition and thermal properties.

9:40 – 10:00  Dorigton O. Ogoyi: Biochemical characterization of trypanolysin factor(s) from the desert locust, *Schistocerca gregaria*. 
10:00 – 10:20  Dmitry L. Musolin: Too hot to handle? Phenological and life-history responses to simulated climate change of the southern green stink bug *Nezara viridula* (Heteroptera).


10:40 – 11:00  **Coffee / Tea break**

**Session 12: Drought and freezing stress in plants.  Chair: Jiří Zámečník**

11:00 – 11:20*  Ali Roka: The effects of drought stress on Antioxidant enzymes activities on rapeseed oil.

11:20 – 11:40  Masaya Ishikawa: Characterization of ice nucleating activity associated with woody stems.

11:40 – 13:00  **Lunch**

13:00 – 14:00  Business session & Closing remarks

18:00 – 20:00  **Farewell dinner at Restaurant HANAMASA**
Posters

Odd numbers: August 25 (Tue), 15:40 – 17:00
Even numbers: August 27 (Thr), 15:40 – 17:00

(*: Presentation by a student)

P-01 Kazuhiro Arakawa: Comparative metabolome profiling of active and anhydrobiotic states of Tardigrade *Ramazzottius varieornatus*.

P-02* Abdollah Bahrani: Wheat (*Triticum aestivum* L.) response to nitrogen and post-anthesis water deficit.


P-04* Tomas Ditrich: Bet-hedging overwintering strategy as a result of low cold hardiness.

P-05 Macus Frohme: A gene expression atlas for studying anhydrobiosis in the tardigrade *Milnesium tardigradum*.

P-06 Takao Furuki: Salt effects on the conformational structure of LEA Protein from *Polypedilum vanderplanki* and of its model peptide.

P-07 Takao Furuki: Model study of the desiccation-induced vitrification of Group-3 Late Embryogenesis Abundant proteins.

P-08 Minoru Sakurai: Structural analysis for dehydrated LEA proteins of *Polypedilum vanderplanki* by replica exchange molecular dynamics simulation.


P-10 Gordana N. Grubor-Lajsic: Changes of free fatty acids of polar and non-polar lipids as adaptive response to desiccation in the arctic springtail (*Megaphorura arctica*).

P-11* Ferawati Hariyanto: The seasonal characteristics of separated and combined sewerage system on domestic wastewater and river.

P-12* Rie Hatanaka: Identification and characterization of a liverwort *Marchantia polymorpha* group 3 LEA protein.

P-13 Steffen Hengherr: Ice nucleation and subzero temperature tolerance in embryonic stages of tardigrades.
P-14 Martin Holmstrup: Slow desiccation improves dehydration tolerance and accumulation of compatible osmolytes in earthworm cocoons (*Dendrobaena octaedra* Savigny).

P-15 Azarnoosh Jafari: Genetic polymorphism study on population of *Salvia* using RAPD technique in north-east of Iran.

P-16* Yuta Kawarasaki: Rapid Cold-Hardening Protects Against Cold-Induced Apoptosis.

P-17 Taras A. Kazantsev: Possibility of revealing of oil pollutants in soil by reflectance spectra of vegetation.


P-19 Rainer Kiko: Development of an *in situ* sampling strategy for environmental physiology of zooplankton through transcriptional profiling.

P-20 Akira Kuriyama: Cryopreservation and high temperature tolerance of actively growing cultured plant cells after desiccation.

P-21 Homa Mahmoodzadeh: *In vitro* germination and seedling development of cryopreserved *Zinnia elegans* mature seeds.


P-24 Jose-Luis Martinez-Guitarte: Modulation of non-coding telomeric RNA expression by environmental pollutants in *Chironomus riparius* (Diptera).

P-25 Dmitry L. Musolin: Thermal requirements for development are heritable and may be changed by artificial selection in the linden bug *Pyrrhocoris apterus*.

P-26 Hideharu Numata: Is the cold tolerance of eggs responsible for the recent population increase in the cicada, *Cryptotympana facialis*, under climate warming?

P-27 Takashi Okuda: Origin and evolution of anhydrobiosis in insects: what we can learn from genes and genomes of the sleeping chironomid.

P-28 Rodjana Opassiri: Expression of rice cell wall hydrolysis enzyme in response to environmental stresses.
P-29 Masood Rafiei: Corn (Zea mays L.) antioxidants response to drought stress.

P-30 Masood Rafiei: Corn (Zea mays L.) antioxidants response to temperature stress.

P-31 Hans Ramløv: Electrophysiological studies on storage cells of the anhydrobiotic eutardigrade Richtersius coronifer.

P-32* Ali Roka: The effect of planting system under irrigated environment on wheat genotypes in semiarid.

P-33* Ali Roka: Seed priming to tolerance saline and drought stress on canola.

P-34 Hideaki Sasaki: Importance of the proline transporter ProP transcription in quick osmotic adaptation of Escherichia coli cells.

P-35* Elham Schokraie: Phosphoprotein profiling of tardigrades in active and anhydrobiotic stage.

P-36 Samina Shakeel: Ecotypic variation in chloroplast small heat-shock proteins and related thermotolerance in Chenopodium album is associated with differences in promoters, transcription, and protein levels, rather than mature-protein sequence.


P-38 Alexey V. Vakatov: The influence of some factors of environment on quantity and the biological parameters Gizhiga-Kamchatka herring.