==========

◇ Plant Stress Science Network Mail Magazine vol.177 ◇

11-April-2025 Volume 177

==========

++++++++◇◆ INDEX ◇◆++

++◆◇◆◇++++++++++++++++++++++

1. New director at IPSR

A new director Prof. Jian Feng Ma was appointed to lead the institute for the next two years from April-1 2025. We wish him all the best and great success in this highly demanding position! Prof. Ma's message in both English and Japanese can be seen from the institute website.

https://www.rib.okayama-u.ac.jp/english/profile/profile1/
https://www.rib.okayama-u.ac.jp/profile/profile1/

2. Scientific reflections on the 40th IPSR symposium

Besides moving to unusual location in Kurashiki, IPSR symposium offered a wide range of talks focusing on plant research. In my personal view, I found very interesting two talks, one related to insect gall formation, and the second that was focused on Monophyllaea plants.

Firstly, I always had a deep personal interest in mechanisms involved in the formation of galls by insects. It is very interesting to see that plants produce these novel structures -- galls that are not encoded in their genomes -- in response to infestation by certain insect species. It has always been difficult to study this phenomenon because of necessity to establish a functional rearing systems under the laboratory conditions. It was therefore exciting to see an elegant model developed by Dr. Bessho-Uehara (Tohoku University), consisting of herbaceous parasitic plant Cuscuta campestris and its hyperparasite, gall-forming weevil Smicronyx madaranus. We learned that the gall formation starts when the adult females deposit egg in the precise position in the Cuscuta stem, which is later dominated by high auxin levels found in the developing galls. Interestingly, the flower development-associated genes were induced in developing galls; therefore, I thought, maybe larvae do not need to induce a completely new structure but rather hijack the plant's flower initiation programs to induce the bud-like structures on plants, and transform them into insect galls.

Secondly, Dr. Tsukaya (The University of Tokyo) introduced us into the interesting world of Monophyllaea plants. As their name suggests, these plants only have one leaf, in spite of developing two cotyledons, a characteristic of all dicot plants. While most plants possess a shoot apical meristem (SAM) that maintains growth and development of the new leaves,

Monophyllea plants use a grove meristem, somewhat similar but not the same as SAM, which gives rise to flowering stem, and the basal meristem, supporting the indefinite growth of the plant's single leaf. On one of the questions, how these plants deal with harvesting enough light from different directions, it was explained that Monophyllea plants often occupy space in caves, and therefore only receive light from one direction.

In this year's closing lecture, we also received a comprehensive overview of cytokinin role in the control of shoot apical meristem size, which happens in response to nitrogen supply. Interestingly, these cytokinins are produced in the roots, and then transported to shoots; so, I thought, if the plants shall have a brain, it should be the branched root system that decides on how much the plant can grow based on the estimated mineral budget contained in the surrounding soil.

3. Open campus at IPSR
Similar to the last year, the Open Campus for public visitors will be held at IPSR on Saturday, May-10, 2025 (10AM-3PM). Introductions of each group at IPSR will be provided together with traditional Quiz Rallye and other activities. For details in Japanese, please visit the institute website.
https://www.rib.okayama-u.ac.jp/information/open_to_the_public2025/

4. Joint research introductions = 107th series =
Returning Home: A Research Collaboration at IPSR
My name is Kadis Mujiono, in November 2024, I had the privilege of returning to the Institute of Plant Science and Resources (IPSR) at Okayama University, where I completed my doctoral studies under Professor Ivan Galis in 2020. This visit was both a professional milestone and a homecoming, providing me with the opportunity to reconnect with my colleagues and contribute to international research collaborations.

Since earning my Ph.D., I have served as a lecturer and researcher at the Faculty of Agriculture at Mulawarman University in Indonesia, focusing on plant resistance to herbivores and their interactions. Returning to IPSR has provided me with a valuable opportunity to enhance my research through collaboration and access to cutting-edge facilities. The primary objective of my visit was to sequence the DNA of bacterial isolates collected from upland rice plants in East Kalimantan, a tropical wet region. Plant-associated microbiomes play a crucial role in plant health and resilience, and understanding their genetic composition can provide valuable insights into their functions in promoting growth and defense mechanisms. The advanced sequencing technologies and bioinformatics tools at IPSR significantly enhanced the accuracy and efficiency of my analysis. Collaborating with esteemed researchers deepened my understanding of plant-microbe interactions and reinforced the importance of international scientific collaboration.

Beyond research, my visit was also a nostalgic experience. Walking through familiar corridors, revisiting laboratories, and engaging with former colleagues rekindled fond memories of my doctoral years. The warm welcome from the IPSR community reaffirmed the strong academic and personal bonds formed during my time as a student. This visit underscored the value of sustained collaboration in scientific advancements. Bridging research between Japan and Indonesia, particularly in plant-insect and plant-microbe interactions, holds great potential for agricultural sustainability. The insights gained from this study will contribute to developing sustainable agricultural practices, particularly for upland rice cultivation in Indonesia. Looking ahead, I aim to further investigate the positive roles of

plant-associated bacteria in enhancing crop resilience. Strengthening collaborations between IPSR and Mulawarman University will foster academic connections and create new research opportunities.

Reflecting on my visit, I am incredibly grateful for the experience and the support I received from the IPSR community. This journey was not just about advancing scientific knowledge; it was also about reaffirming the values of collaboration, mentorship, and academic camaraderie. IPSR will always hold a special place in my heart, and I look forward to future research endeavors with this esteemed institution. Returning to IPSR truly felt like coming home.

5. Recently released publications

Hoepfner, L.M., Nievergelt, A.P., Matrino, F., Scholz, M., Foster, H.E., Rodenfels, J., von Appen, A., Hippler, M., Pigino, G.
Unwrapping the ciliary coat: High-resolution structure and function of the ciliary glycocalyx.
Advanced Science (Weinheim, Baden-Wurttemberg, Germany), e2413355 (2025)
Doi.org/10.1002/advs.202413355

Hisano, H., Sakai, H., Hamaoka, M., Munemori, H., Abe, F., Meints, B., Sato, K., Hayes, P.M.
Rapid development of naked malting barley germplasm through targeted mutagenesis.
Molecular breeding: new strategies in plant improvement, 45(3):32 (2025)
Doi.org/10.1007/s11032-025-01553-5

Honda, S., Yokoyama, A., Suzuki, N.
RNA editing of genomic neighbors controls antiviral response in fungi.
Cell Host & Microbe, S1931-3128(25)00064-2 (2025)
Doi.org/10.1016/j.chom.2025.02.016

Takagi, H., Lee, N., Hempton, A.K., Purushwani, S., Notaguchi, M., Yamauchi, K., Shirai, K., Kawakatsu, Y., Uehara, S., Albers, W.G., Downing, B.L.R., Ito, S., Suzuki, T., Matsuura, T., Mori, I.C., Mitsuda, N., Kurihara, D., Matsushita, T., Song, Y.H., Sato, Y., Nomoto, M., Uchida, N., Tada, Y., Hanada, K., Cuperus, J.T., Queitsch, C., Imaizumi, T.
Florigen-producing cells express FPF1-LIKE PROTEIN 1 to accelerate flowering and stem growth in Arabidopsis.
Developmental Cell, S1534-5807(25)00065-6 (2025)
Doi.org/10.1016/j.devcel.2025.02.003

Emrich-Mills, T.Z., Proctor, M.S., Degen, G.E., Jackson, P.J., Richardson, K.H., Hawkings, F.R., Buchert, F., Hitchcock, A., Hunter, C.N., Mackinder, L.C.M., Hippler, M., Johnson, M.P.
Tethering ferredoxin-NADP+ reductase to photosystem I promotes photosynthetic cyclic electron transfer.
The Plant Cell, 37(3):10.1093/plcell/koaf042 (2025)
Doi.org/10.1093/plcell/koaf042

Endo, Y., Tanaka, M., Uemura, T., Tanimura, K., Desaki, Y., Ozawa, R., Bonzano, S., Maffei, M.E., Shinya, T., Galis, I., Arimura, G.
Spider mite tetranins elicit different defense responses in different host habitats.
The Plant Journal: for cell and molecular biology, 121(5): e70046 (2025)
Doi.org/10.1111/tpj.70046

Suzuki, N., Iwatani, Y., Matsuno, K., Nishimura, H., Watanabe, T., Yamada, M.
[JSV Virus Nomenclature Working Group Report 2024: Backgrounds, Tasks and Roles.].
ウイルス, 74(2):141-148 (2024)
Doi.org/10.2222/jsv.74.141

Kim, J., Sato, M., Kojima, M., Asrori, M.I., Uehara-Yamaguchi, Y., Takebayashi, Y., Do, T.N., Do, T.Y., Thi, K.O.N., Sakakibara, H., Mochida, K., Ogita, S., Hirai, M.Y.
Multi-omics signatures of diverse plant callus cultures.
Plant Biotechnology (Tokyo, Japan), 41(3):309-314 (2024)
Doi.org/10.5511/plantbiotechnology.24.0719a

6. Posting request
We continuously encourage all PSSNet subscribers to contribute information about their latest publications, meetings and seminars, staff, postdoc, and student recruitments, etc. Please send your information to [pssnet-admin@okayama-u.ac.jp] E-mail address. You can also distribute your information via mailing list of the PSSNet.

****
「Plant Stress Science Network Mail Magazine」
■ Date of issue 11-April-2025
■ Edited by Ivan Galis
■ Publisher Okayama University Institute of Plant Science and Resources/Plant Stress Science Research Network (PSSNet) Committee
■ WEB http://www.rib.okayama-u.ac.jp/pssnet/

How to change/cancel email magazine registration:
https://www.rib.okayama-u.ac.jp/pssnet/Registermember.htm
Please refer to instructions on website
****
(This email is delivered by Okayama University staff)
---
pssnetml mailing list
pssnetml@okayama-u.ac.jp