

++++++◇◆ INDEX ◇◆+++++

1. Preface
2. Article highlight
3. Job recruitment at IPSR
4. Recently released publications
5. Online IPSR student recruitment
6. Posting request
7. Postscript

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1. Preface

In the previous Volume 156, heavy rain in Japan was the main concern but it was now replaced by soaring heat of the Japanese summer. But not to forget, tropical storms are coming into attention as well, literally as I am writing these words. So, while taking some anticipated rest during upcoming holiday season, let's not forget about our body needs and sufficient water supply! Not only plants entirely depend on the water for their lives! And if too much water cancelled your important flight? Well, we have a saying that "patience brings roses". Be patient and you'll be rewarded greatly and beautifully.

2. Article highlight

Many scientists focus on issues associated with growth of crops in problematic substrates, such as the acidic soils. However, as pointed out in the recent Science article by Zhang et al. (2023), alkaline soils also represent a serious obstacle to plant growth. About > 1 billion ha of land is now affected by salt according to the report from the Food and Agriculture Organization (FAO; <https://www.fao.org/3/i5199e/i5199e.pdf>). The largest proportion of these soils, known as "sodic" soils, contain high levels of sodium bicarbonate (NaHCO₃) and sodium carbonate (Na₂CO₃). It has been found in the article that some sorghum varieties can survive in sodic soils with a pH as high as 10.0. The molecular analyses carried out in the study revealed that a responsible locus, designated as ALKALINE TOLERANCE 1 (AT1), encodes for a G protein gamma subunit that is involved in the modulation of ROS homeostasis in plant cells during alkalinity stress, which happens via phosphorylation of specific aquaporins. As the knockout of AT1, and orthologous genes in rice (OsGS3) and maize (ZmGS3), could increase the plant tolerance to alkalinity in each crop, it was proposed that general mechanisms exposed in this study can be used for genetic improvements and amendment of yield in cereal crops growing under the adverse alkali stress conditions.

Citation: H. Zhang et al.: A G gamma protein regulates alkaline sensitivity in crops. Science 379, eade8416(2023)
<https://doi.org/10.1126/science.ade8416>

3. Job recruitment at IPSR (Full Professor)

The Institute of Plant Science and Resources is now looking for a Professor in the Barley and Wild Plant Resource Center, starting in April 2024. This public offering anticipates research on barley genetic resources developed in the institute. People with deep insights and achievements in the field of plant science with profound knowledge in breeding of plants are encouraged to apply. The position involves teaching and education at the Okayama University Graduate School of Environmental, Life, Natural Science and Technology. The Okayama University is an equal opportunity/affirmative action employer.

Application deadline: 29-September, 2023

Application materials are accepted by E-mail

Links: <https://www.okayama-u.ac.jp/tp/society/boshyu-kyoiku.html>

JREC-IN portal: <https://jrecin.jst.go.jp/seek/SeekJorDetail?id=D123072428>

4. Recently released publications

Ikeda, H.

Virtual Issue: Phylogeographic Studies in the Japanese Archipelago: From Geographic Patterns of Genetic Variation to Biodiversity in Plants.

Journal of Plant Research, 10.1007/s10265-023-01478-0 (2023)

Doi.org/10.1007/s10265-023-01478-0

Wang, P., Ma, J.F.

Knockout of a Gene Encoding a G-Gamma Protein Boosts Alkaline Tolerance in Cereal Crops.

ABIOTECH [Online first] (2023)

Doi.org/10.1007/s42994-023-00106-8

Zinzius, K., Marchetti, G.M., Fischer, R., Milrad, Y., Oltmanns, A., Kelterborn, S., Yacoby, I., Hegemann, P., Scholz, M., Hippler, M.

Calredoxin Regulates the Chloroplast Nadph-Dependent Thioredoxin Reductase in *Chlamydomonas reinhardtii*.

Plant Physiology, kiad426 (2023)

Doi.org/10.1093/plphys/kiad426

Andika, I.B., Tian, M., Bian, R., Cao, X., Luo, M., Kondo, H., Sun, L.

Cross-Kingdom Interactions Between Plant and Fungal Viruses.

Annual Review of Virology, 10.1146/annurev-virology-111821-122539 (2023)

Doi.org/10.1146/annurev-virology-111821-122539

Nagata, K., Nonoue, Y., Matsubara, K., Mizobuchi, R., Ono, N., Shibaya, T., Ebana, K., Ogiso-Tanaka, E., Tanabata, T., Sugimoto, K., Taguchi-Shiobara, F., Yonemaru, J., Uga, Y., Fukuda, A., Ueda, T., Yamamoto, S., Yamanouchi, U., Takai, T., Ikka, T., Kondo, K., Hoshino, T., Yamamoto, E., Adachi, S., Sun, J., Kuya, N., Kitomi, Y., Iijima, K., Nagasaki, H., Shomura, A., Mizubayashi, T., Kitazawa, N., Hori, K., Ando, T., Yamamoto, T., Fukuoka, S., Yano, M.

Development of 12 Sets of Chromosome Segment Substitution Lines that Enhance Allele Mining in Asian Cultivated Rice.

Breeding Science [Online first] (2023)

Doi.org/10.1270/jsbbs.23006

Genievskaya, Y., Almerikova, S., Abugaliev, S., Abugaliev, A., Sato, K., Turuspekov, Y.

Identification of SNPs Associated with Grain Quality Traits in Spring Barley Collection Grown in Southeastern Kazakhstan.

Agronomy-BASEL, 13(6):1560 (2023)

Doi.org/10.3390/agronomy13061560

5. Student recruitment - Online Graduate School Briefings

The Institute of Plant Science and Resources (IPSR) offers many opportunities for graduate students to engage in various aspects of plant research, in particular plant stress-related topics. The Institute announced two online briefings via Zoom on the following dates. Please apply before 18-August 2023.

25-August 2023 (Friday) 13:00~16:00

28-August 2023 (Monday) 13:00~16:00

Registration page (Japanese):

https://www.rib.okayama-u.ac.jp/grdsh/Daigakuin_J/setsumeikai.html

Information page (English):

https://www.rib.okayama-u.ac.jp/nucleus/Daigakuin_E/Top.html

[Q&A] (English - Japanese)

Daisuke Saisho, Institute of Plant Science and Resources,
Okayama University

TEL: (086)434-1245 E-mail: saisho@okayama-u.ac.jp

6. Posting request

In the PSSNet E-mail magazine and website, we aim to share various information about research in plant (stress) science. We sincerely invite 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.

7. Postscript from the issue Editor

I would like to conclude this issue with some easy going thoughts for those who are, like me, dismayed by blasting summer heat... You have probably noticed that one regular part of the magazine is missing in this issue. That is correct, we do not present a Column from the collaborator, which is due to a sharp decline of visitors in the institute as a consequence of past COVID-19 travel regulations. Although I was searching for a suitable content, I am sorry to say that I failed; nothing substantial has come to my mind this time. Then, I thought that I am in a big trouble... And suddenly, I hear on TV about the ChatGPT, and that it can do everything, even miracles. Why not, I thought... Why not give it a try? I registered with ChatGPT website and without any detailed instructions (or expectations), I put my request straight into the ChatGPT prompt line. I did not have to wait long for the answer, as it came out right away:

>>>> start of transcript <<<<<

Ivan:

Can you write a short essay about your imaginary visit at the Institute of Plant Science and Resources in Kurashiki?

ChatGPT:

Title: Exploring the Institute of Plant Science and Resources in Kurashiki

Introduction: Imagine stepping into a realm where the vibrant world of plants unveils its secrets. This short essay takes you on an imaginary visit to the

Institute of Plant Science and Resources (IPSR) in Kurashiki, offering a glimpse into the captivating world of plant research and discovery.

The Enchanting Setting: Nestled amidst the picturesque city of Kurashiki in Japan, the IPSR stands as a beacon of scientific exploration and innovation. As I approach the institute, I am greeted by lush gardens teeming with a dazzling array of plant species. The serene atmosphere and meticulous landscaping create an atmosphere of tranquility and reverence for nature.

A Global Hub for Plant Research: The IPSR proudly stands as a world-renowned institution, attracting scientists, botanists, and researchers from across the globe. With state-of-the-art laboratories, research facilities, and greenhouses, the institute provides a fertile ground for the study of plant science. Its interdisciplinary approach fosters collaboration between experts in various fields, enabling groundbreaking advancements in the understanding of plant biology.

Diverse Research Endeavors: Within the walls of the IPSR, researchers delve into a wide spectrum of plant-related studies. From molecular genetics to plant breeding, the institute encompasses a broad range of disciplines. I have the opportunity to witness scientists engrossed in the sequencing of plant genomes, unraveling the complex genetic codes that shape these living organisms. In another corner, researchers are meticulously studying plant metabolites, exploring the potential for novel drugs and therapeutic compounds.

Greenhouse Wonders: As I step into the vast network of greenhouses, I am engulfed in a kaleidoscope of colors and scents. The air is filled with the aroma of various plants, each with its unique fragrance. I observe scientists carefully nurturing delicate orchids, manipulating growth conditions to optimize their beauty and vitality. Nearby, agricultural scientists experiment with crop varieties, seeking to enhance their resilience to climate change and increase yield for a growing population.

Conservation and Sustainability: The IPSR places a strong emphasis on conservation and sustainable practices. In collaboration with local communities and international organizations, the institute undertakes initiatives to preserve endangered plant species and protect fragile ecosystems. Their work extends beyond the laboratory, as they actively engage in educational programs and outreach activities to raise awareness about the importance of plant conservation.

Conclusion: As my imaginary visit to the Institute of Plant Science and Resources draws to a close, I am left in awe of the dedication and passion exhibited by the scientists and researchers. Their unwavering commitment to unraveling the mysteries of the plant kingdom is truly inspiring. The IPSR serves as a beacon of hope, bridging the gap between scientific discovery and the preservation of our natural world. It reaffirms the significance of plants in our lives, reminding us of their vital role in sustaining life on Earth.

Ivan:

Do you mind if I use this text in our mail magazine to demonstrate your great abilities?

ChatGPT:

I'm glad you found the text to be valuable! As an AI language model, I don't have personal preferences, but you are welcome to use the text in your mail magazine to showcase the capabilities of the AI model. However, please note

that as an AI, I don't have real experiences or emotions, and the text is generated based on patterns and examples from the training data. Therefore, it's important to attribute the text to OpenAI's ChatGPT or mention that it was generated with the assistance of an AI language model.

Ivan:
Thank you for your help!

ChatGPT:
You're welcome! I'm glad I could assist you. If you have any more questions in the future, feel free to ask. Good luck with your mail magazine!

>>>> end of transcript <<<<<

Well, I felt like I had a good conversation. With whom? With no one but who knows everything. Except for "nurturing delicate orchids" I had nothing to be really corrected in the ChatGPT generated text. And actually, scary enough, in one of the greenhouses, a large flowering orchid plant peaks outside as a commemorative proof of the recent Prize awarded to Professor Jiang Feng Ma. Should we really start worrying about the human future? What do you think?

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