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EDITORIAL

2023 Awards in the Journal of Plant Research

Maki Katsuhara[1]

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The Botanical Society of Japan honors excellence in publications of the *Journal of Plant Research* through the Best Paper Awards and the Most-Cited Paper Award every year. We are proud to announce the 2023 recipients.

Best Paper Awards

Two papers were selected among regular papers published in 2022.

The article by Noguchi et al. (2022) reveals how aboveground biomass (AGB) of deciduous forests changed in cool-temperate zones. The authors conducted tree surveys every 2–4 years in a natural forest of about 4.7 hectares in southern Iwate Prefecture, recording the growth of trees over a 26-year period from 1993 to 2019. The results stated the region-specific trends of forest dynamics. Except for the four-year period from 2012 to 2015, tree growth exceeded the loss from tree mortality and AGB steadily increased during the experimental period. This increase in AGB was driven by stable growth of large-sized trees belonging to the dominant species such as *Fagus crenata*, *Quercus crispula* and *Acer mono* on ridges and slopes, and *Pterocarya rhoifolia* and *Aesculus turbinata* in riparian sites. The increase in AGB was correlated positively with summer temperature but negatively with autumn temperature, with equivalent effects. The recent rise in temperature during the growth period offsets the positive and negative effects on AGB, and the authors expected that other weather factors are considered to contribute to the increase in AGB. The long-term data from the specific region presented in this article sheds light on the whole statue of the forest ecology, and should enable more accurate predictions of forest dynamics in response to the rapid global warming.

Plants sense water gradients and bend their roots toward higher water levels in order to acquire water essential for growth. This is a phenomenon called hydrotropism, and expression of root hydrotropism is interfered by expression of root gravitropism. Although the strength of the interference was reported to vary among plant species, comparisons within a single plant species have been seldom performed. In Mao et al. (2022), using different ecotypes of 217 species of the model plant *Arabidopsis thaliana* distributed all over the world, the interplay between hydrotropism and gravitropism was comprehensively compared and thoroughly investigated under steady-state and microgravity conditions. In the results, it was revealed that gravitropism interferes with hydrotropism in all roots of the *A. thaliana* accessions examined in this experiment, and that the degree of the interference varies greatly among the accessions. Furthermore, Genome-Wide Association Studies (GWAS) suggested that the MYB52 transcription factor may be involved in hydrotropism. This paper provides new findings on the interaction between root hydrotropism and root gravitropism in *A. thaliana*, and may lead to elucidation of the mechanism of hydrotropism and understanding of its physiological significance, thus, such importance of this research was highly evaluated.

Most-Cited Paper Award

Nakamura and Noguchi (2020) was selected as the paper with the most citations (excluding self-citations) from papers published in JPR in 2020, based on citation data from the Web of Science Core collection. Plants that can grow in wetlands, such as rice (wetland plants), can tolerate long-term strict hypoxia and anoxic conditions and the subsequent re-oxidative stress compared to terrestrial plants. This review article summarizes the mechanisms of gene actions, signaling networks, and phytohormones involved in tolerance to O_2 deficiency and re-oxidation, including the relationship between the two contrasting strategies, low O_2 escape and low O_2 quiescence. The paper also describes the

✉ Maki Katsuhara
kmaki@okayama-u.ac.jp

[1] Institute of Plant Science and Resources (IPSR), Okayama University, 2-20-1, Chuo, Kurashiki 710 – 0046, Japan

different N utilization strategies functionally relating to the hypoxia or anoxia tolerance in wetland plants.

Maki Katsuhara
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References

Nakamura M, Noguchi K (2020) Tolerant mechanisms to O_2 deficiency under submergence conditions in plants. J Plant Res 133:343–371

Noguchi M, Hoshizaki K, Matsushita M, Sugiura D, Yagihashi T, Saitoh T, Itabashi T, Ohta K, Shibata M, Hoshino D, Masaki T, Osumi K, Takahashi K, Suzuki W (2022) Aboveground biomass increments over 26 years (1993–2019) in an old-growth cool-temperate forest in northern Japan. J Plant Res 135:69–79

Mao B, Takahashi H, Takahashi H, Fujii N (2022) Diversity of root hydrotropism among natural variants of *Arabidopsis thaliana*. J Plant Res 135:799–808