## 植物ゲノム・遺伝子源解析センター 月例セミナー

- とき 令和元年8月23日(金)16時~17時 ところ 農学部 A302 演習室
- 題目 「Approaches in enhancing antioxidant defense in plants for conferring abiotic stress tolerance」

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## 概略

In a persistently changing environment, plants are constantly challenged by various abiotic stresses, which cause substantial losses in the yield and quality of a crop. A key sign of such stresses at the molecular level is the accelerated production of reactive oxygen species (ROS) such as singlet oxygen (102), superoxide (O2 -), hydrogen peroxide (H2O2) and hydroxyl radicals (OH·). ROS are extremely reactive because they can interact with several cellular molecules and metabolites, thereby leading to irreparable metabolic dysfunction and death. Plants have well-developed enzymatic and non-enzymatic scavenging pathways or detoxification systems to counter the deleterious effects of ROS. In plant cells, specific ROSproducing and scavenging systems are located which act coordinately. Recent studies in plants have shown that relatively low levels of ROS (e.g., H2O2) act as signaling molecules that induce abiotic stress tolerance by regulating the expression of defense genes. Additionally, numerous results have shown that plants with higher levels of antioxidants, whether constitutive or induced, showed greater resistance to different types of environmental stresses. In recent decades, various approaches like agronomic manipulation, use of exogenous protectants, omics, and molecular biotechnological tools have been applied to enhance plant tolerance through the enhancement of antioxidant defense. Fine-tuning these approaches would confer enhanced tolerance to abiotic stress and ensure global food security.

Enhancing Abiotic Stress Tolerance in Plants, CRC Press Taylor & Francis Group, LLC, 2018, edited by Hasanuzzaman, M., Nahar, K., Fujita, M. Oku, H., and Islam, T.

主催 : 香川大学農学部 植物ゲノム・遺伝子源解析センター (http://www.ag.kagawa-u.ac.jp/phytogene/index.html)