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Exploring the Scientific World

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Understanding the functions of plants that support our lives

Plant functions and our lives

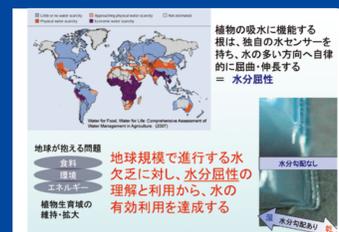
Plant functions support our lives. For example, plants use photosynthesis to produce carbohydrates. Carbohydrates are important as a staple for animals, including human beings, and as industrial materials and biofuel. Oxygen produced and released in the air during photosynthesis is also indispensable for us to live. Thus, despite medical science progressing, human beings will become extinct without plant productivity, which is why plants must be studied.

Current state of the global environment surrounding plants

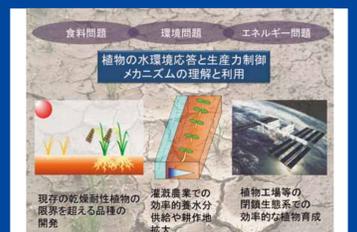
The water shortage accompanying current global climate changes negatively impacts plants growth. As a result, food and energy supplies as well as environmental sustainability have been threatened. One challenge we must meet is providing solutions for these issues.

Toward understanding the functions of plants supporting our lives

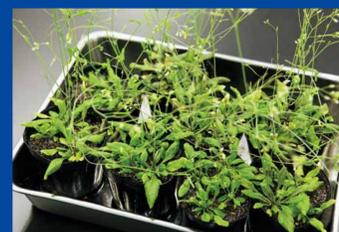
How plants can handle the ongoing water shortage is an important issue. Like us, plants cannot grow without water. In addition, because of their sessile nature, plants cannot move toward wet areas; instead, plants have several sophisticated mechanisms to adapt to their surroundings. We are currently studying the molecular mechanism underlying the adaptation to water-limited environments and the mechanisms that sustain plant productivity under harsh conditions. Elucidation and utilization of these mechanisms will enable us to grow plants under water-limited conditions without diminishing their productivity, which will ultimately contribute to our secure future.



Necessity of developing plants capable of enhanced drought avoidance in the global climate change era



Improving water acquisition for plants: Green Innovation from Japan to the world



Arabidopsis thaliana, a model plant useful for clarifying the gene function responsible for drought avoidance



Arabidopsis seedlings lacking one of the genes responsible for drought avoidance