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## **Abiotic stress responses of cutinized leaves and suberized roots in barley: comparing gene expression, chemical composition and water transport**

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場所: 理農館 SA128号室



講演内容: Leaves and roots are separated from the surrounding environment by extracellular lipophilic biopolymers. The interface between the atmosphere and leaves is formed by the hydrophobic waxy cuticle sealing the outer epidermal cell walls. The soil/root interface is formed by the endo- and exodermis characterized by lignified and suberized cell walls. In response to various abiotic stress factors (osmotic stress, salt stress, nutrient deficiency, oxygen deficiency ...) cuticular wax deposition and root suberization are often enhanced. Changes in gene expression, chemical composition and water transport in barley leaves and roots in response to osmotic stress have been analysed and compared in detail. In leaves main responses are the induction of wax biosynthesis genes, the reduction of leaf elongation and enhanced wax depositions. However, cuticular transpiration of barley is not at all affected. In roots main responses are the induction of suberin biosynthesis genes, the reduction in root elongation and enhanced root suberization. However, different from leaves this leads to a reduced radial water and solute transport in roots. Potential reasons and hypothesis for these very different functional responses of leaf and root transport barriers in reaction to osmotic stress will be discussed.

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