Studies on Strigolactone receptors for root parasitic weed *Striga* control.

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Abstract

Strigolactone (SL), known as a plant hormone, was discovered as an allelopathic substance that induces seed germination of root parasitic weeds, *Striga*. In many crops, oligotrophic conditions (mainly phosphorus deficiency) promote SL synthesis, and SL leaches from the roots into the soil. SL is a molecule necessary for inducing symbiosis with mycorrhizal fungi, and is originally a molecule that benefits plants. *Striga* hijacks SL as a host recognition signal and uses it for parasitism. In Africa, two-thirds of the cultivated land is already contaminated with *Striga*, and 100 million people have been damaged. In this study, we have discovered and proved an ultrasensitive SL receptor in *Striga* essential for host recognition[1]. Furthermore, we succeeded in developing a simple SL biosensor. In addition, SL agonists[2] and antagonists[3] were successfully developed. These findings are expected to lead to the formation of a technological development base for parasitic weed control.

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3) Holbrook-Smith, D., Toh, S., Tsuchiya, Y., and McCourt, P.: Small molecule antagonists of germination of the parasitic plant Striga hermonthica」、*Nature Chem. Biol.* 12, 724～729 (2016)