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Effect of Tiller Number, Temperature and Day-Length on the Heading Time Responce of Rice

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[Introduction]

The case of rice, the heading time depends on the daylength and temperature . The shorter a day and the higher the temperature, the faster the heading time. The assimilation products made according to the amount of insolation are distributed to each tiller. Therefore physiological response varies according to the number of tillers.. This study provides information on the relationship between the daylength and the temperature, which influences the heading time which the prediction of the change of heading time by the varieties.

[Materials and Methods]

The cultivars used in the test were Odae. After 9 days after transplanting, the tillers were removed and the temperature treatment was performed at 22(17/27)°C and 28(23/33). After removing the tillering, the days were treated for 12 hours (short-days) and 14 hours 30 minutes (long-days). Gene expression was analyzed by Quantitation Real-Time PCR.

[Results and Discussion]

When the tillering was removed, the heading time was accelerated due to the decrease in the expression of OsMFT1 in a short-day condition. OsMFT1 delays heading time in rice by suppressing Ehd1, FZP and SEPALLATA-like genes. A list of genes involved in tillering was prepared in order to find genes related delay heading time in long-day conditions. When tillering was removed, tillering relation gene was increased, but there was no trend according to day-length and temperature.

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