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Effect of Foliar Application of Triacontanol on Growth and Yield of Rice Plants : IV. Effect of triacontanol on the ripening of rice plants under shading and low temperature conditions

Tokihide NAGOSHI and Sakae KAWASHIMA
1) Atsugi Central Farm, Tokyo University of Agriculture
2) Atsugi Central Farm, Tokyo University of Agriculture

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Abstract:
The effects of foliar application of triacontanol (TRIA; 10ppb) on the ripening of rice were investigated under the condition of shading after heading and of low temperature before heading. The shading condition was set up at about 40% shading from heading time to harvesting time in 1992. The low temperature condition was set up at 20/15°C (day/night) for 9 days from the day on which the distance between auricles of flag and penultimate leaves was ±0cm before heading in 1994. Also, in 1992, the effect of TRIA was investigated under natural conditions which was cultured out-of-doors during all growth stages. Under all the conditions, TRIA-treated rice plants showed enhancement of the grain weight increase after heading and the 1, 000 grain weight of brown rice and the percentage of ripened grain at harvesting time. The effect of grain weight increase after heading was highest from the middle ripening stage. The rough rice number per panicle in TRIA-treated rice plants increased with the number of secondary rachis-branches. TRIA-treated rice plants were significantly higher than non-treated rice plants in terms of the weight of rachis-branches which include the weight of rachis and pedicel, and the hull weight. From these results, in TRIA-treated rice plants under all the conditions, it was suggested that the translocation of and the amount of carbohydrate to the panicle were increased with enhancement of development of rachis-branches and physiological activity of the hull. These results can be used to promote ripening.

Keywords:
Foliar application, Grain weight increase, Low temperature, Rice plants, Ripening, Shading, Triacontanol

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