

# Greenhouse Test of BPH-Resistant Rice Mutants

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Previously, we selected two new mutant lines of 'SH-26' and 'SH-28' with great resistance against brown planthopper (BPH) originated from the Chinese cultivar, 'Sanghaehyanghyeolna' after  $\gamma$ -ray irradiation. The greenhouse test performed to assess preference persistence, effect on plant growth, and oviposition by BPH.

Change of preference rate of BPH to 3~4 leaf-stage plant of 5 rice cultivars, barnyardgrass, and two mutants of 'SH-26' and 'SH-28' against BPH-susceptible cultivar, "Choocheong" were examined for 15 days. Changes of plant height and fresh weight of each rice cultivars, mutants, and barnyardgrass after BPH inoculation were evaluated for two weeks. And also number of eggs oviposited by BPH female on each plant was investigated.

The non-preference of BPH to SH-26, SH-28, and barnyardgrass was observed just after the inoculation of BPH and lasted for whole experimental period. The fresh weight of SH-26 and SH-28 inoculated with BPH was reduced to approximately half of the control plants of each mutant, but there was not significant difference of plant height between BPH-inoculated and BPH-free mutants. Whereas 5 rice cultivars were significantly reduced in fresh weight and plant height after BPH inoculation and most of plants were dead at 14th day after BPH inoculation. However, the growth of barnyardgrass was not affected by BPH inoculation. The oviposition of BPH on SH-26 and SH-28 was not significantly different from other rice cultivars except Sanghaehyanghyeolna, original cultivar of two mutants, showing great oviposition number. And, the lowest number of eggs was oviposited in barnyardgrass.

In conclusion, BPHs unwillingly accept SH-26 and SH-28 as food, and the growth of two rice mutants is least affected by BPH feeding even though oviposition was not deterred. These results imply that unidentified material from these mutants would be involved in the non-preference of BPH. The analysis of BPH resistance-related rice genes would be greatly helpful for the development of BPH-resistant rice cultivar.