



# Identification of a new locus conferring antixenosis to the brown planthopper in rice cultivar Swarnalata (*Oryza sativa* L.)

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**ABSTRACT.** The brown planthopper [*Nilaparvata lugens* (Stål); BPH] has caused severe damage to rice production. The identification of resistance genes and the development of BPH-resistant varieties are economical and effective ways to manage this pest. Using an F<sub>2</sub> population from a cross between the *Indica* cultivars 93-11 and Swarnalata, we mapped the *Qbph-8* locus to a 7.3-cM region on chromosome 8 in two tests, flanked by the markers RM339 and RM515. In this population, *Qbph-8* explained 7.7 and 6.6% of the phenotypic variance of BPH preference in both tests. In the BPH host choice test, the average number of settled BPHs on the *Qbph-8* plants was less than that on the 93-11 plants over the 24- to 120-h observation period. Furthermore, less BPH insects were observed on the *BPH6+Qbph-8* plant compared with the *BPH6* plant or *Qbph-8* plant, indicating a stronger antixenotic effect shown in the gene pyramiding plants. Hence, this locus can be pyramided with other BPH resistance genes and applied to breed-resistant varieties, which possibly can improve the resistance level and durable resistance to the BPH.

**Key words:** Brown planthopper [*Nilaparvata lugens* (Stål)]; *Oryza sativa*; Gene mapping; *bph* resistance gene; Antixenosis