

## PGPR-induced rice plant defense against brown planthopper

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### Abstract

Plant Growth Promoting Rhizobacteria (PGPR) are a group of rhizosphere bacteria that can promote plant growth and increase plant defense responses against pathogens and herbivores. There are many bacteria contained in the bamboo roots PGPR, from the gram staining observations, showed that the red-colored gram-negative bacteria dominate more than the purple-colored gram-positive bacteria. In rice plants (*Oryza sativa* L.), defense response against brown planthopper (BPH) has been associated with the activity of several specific bacterial species. However, the induction of resistance to BPH in rice plants by PGPR is not well known. Therefore, we tested the ability of PGPR from bamboo roots to induce rice defense against BPH. Here We found that the application of PGPR to rice aged 7 DAP could increase resistance against BPH. At an application of 20%, PGPR can significantly reduce the BPH population. Furthermore, the PGPR application reduced the damage intensity to 17.10%, while the damage intensity at the control plant was 90%. Our data show that PGPR from bamboo roots has the potential to be used not only as a growth promoter but also as an inducer of plant resistance to BPH.

**Keywords:** *Rice (Oryza sativa L.), brown planthopper (Nilaparvata lugens Stal.), PGPR, plant defense, bamboo roots,*