

## Supplementary Data 1.

### *In vitro* antagonism activity assay with *Xanthomonas oryzae* pv. *oryzae* (Xoo)

The level of Xoo growth inhibition was determined by measuring the difference between the clear zones formed ( $\gamma_0$ ) and the control ( $\gamma$ ).

$$\Delta\gamma = \gamma_0 - \gamma$$

where if,  $\Delta\gamma \geq 20$  mm, it was scored as +++;  
 $\Delta\gamma \geq 10-19$  mm, it was scored as ++;  
 $\Delta\gamma \geq 5-9$  mm, it was scored as +; and  
 $\Delta\gamma < 5$  mm, no inhibition activity occurred.

### Leaf lesion length

The length of the lesion was measured with a ruler and recorded for every infected leaf in each pot.

### % Diseased leaf area (% DLA)

The lesion from the point of leaf clipping infected part and the spreading the lesion of each pot was marked and measured (Yasmin et al., 2017). The length of the lesion and the total length of infected leaf were recorded. The DLA was calculated according to the following formula.

$$\% \text{ Diseased Leaf Area (DLA)} = \frac{\text{Length of the lesion}}{\text{Total length of infected leaf}} \times 100$$

### Disease suppression

Disease suppression was calculated based on the mean lesion length in bacterial treated rice leaves divided by the mean lesion length in untreated control leaves (Ji et al., 2008). Disease suppression was calculated for each treatment.

$$\text{Disease suppression (\%)} = \frac{\text{Mean lesion length in untreated control} - \text{Mean lesion length in bacterial treated}}{\text{Total length of infected leaf}} \times 100$$

**Supplementary Table 1.** Stock solution for Yoshida nutrient was prepared for rice pot planting

Element	Reagents	Preparation (g/l solution)
Macronutrient		
N	NH <sub>4</sub> NO <sub>3</sub>	91.40
P	NaH <sub>2</sub> PO <sub>4</sub> ·H <sub>2</sub> O	35.60
K	K <sub>2</sub> SO <sub>4</sub>	71.40
Ca	CaCl <sub>2</sub> ·2H <sub>2</sub> O	117.35
Mg	MgSO <sub>4</sub> ·7H <sub>2</sub> O	324.00
Micronutrient	Each reagent dissolved separately and mixed in 1 liter distilled water, then add 100 ml H <sub>2</sub> SO <sub>4</sub> and make up the volume to 2 liter	
Mn	MnCl <sub>3</sub> ·4H <sub>2</sub> O	3.000
Mo	(NH <sub>4</sub> ) <sub>6</sub> Mo <sub>7</sub> O <sub>24</sub> ·4H <sub>2</sub> O	0.148
Zn	ZnSO <sub>4</sub> ·7H <sub>2</sub> O	0.070
B	H <sub>3</sub> BO <sub>3</sub>	1.868
Cu	CuSO <sub>4</sub> ·5H <sub>2</sub> O	0.062
Fe	FeCl <sub>3</sub> ·6H <sub>2</sub> O	15.400
	C <sub>6</sub> H <sub>8</sub> O <sub>7</sub> ·H <sub>2</sub> O	23.800

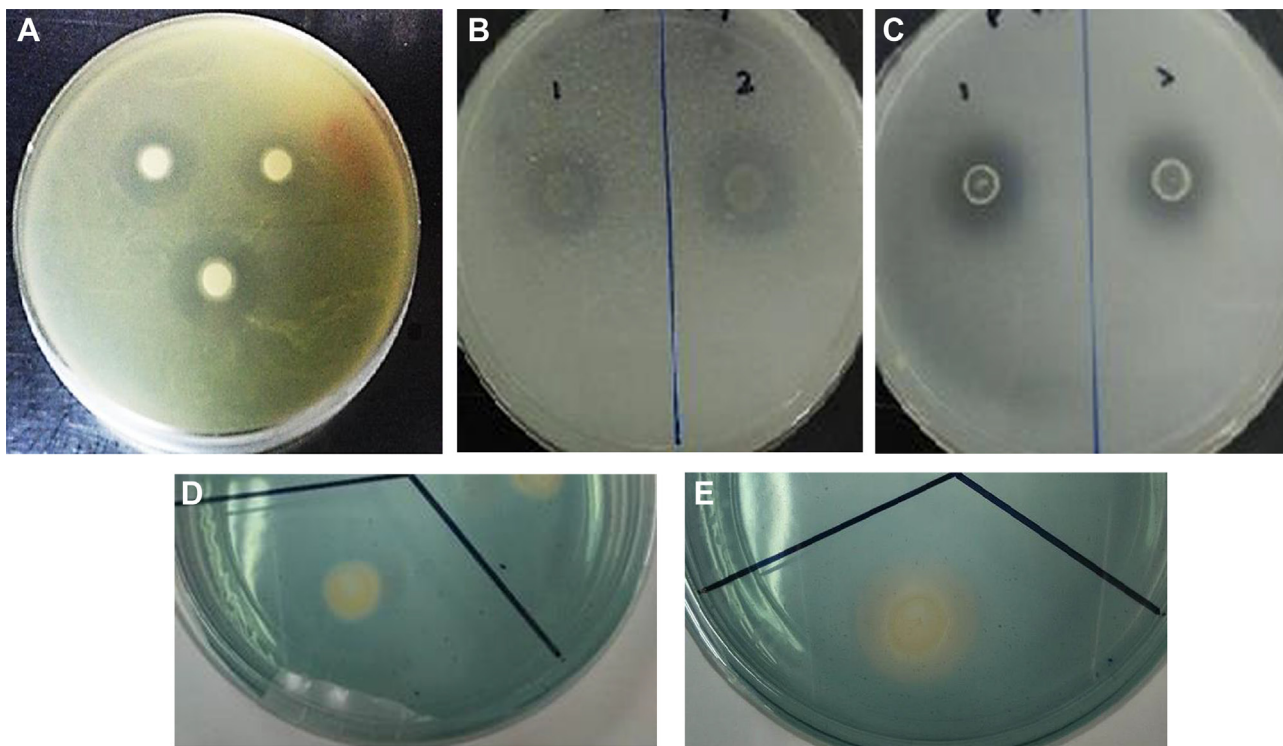
Source: Yoshida et al. (1976).

**Supplementary Table 2.** The disease scale of bacterial leaf blight disease (International Rice Research Institute, 2002)

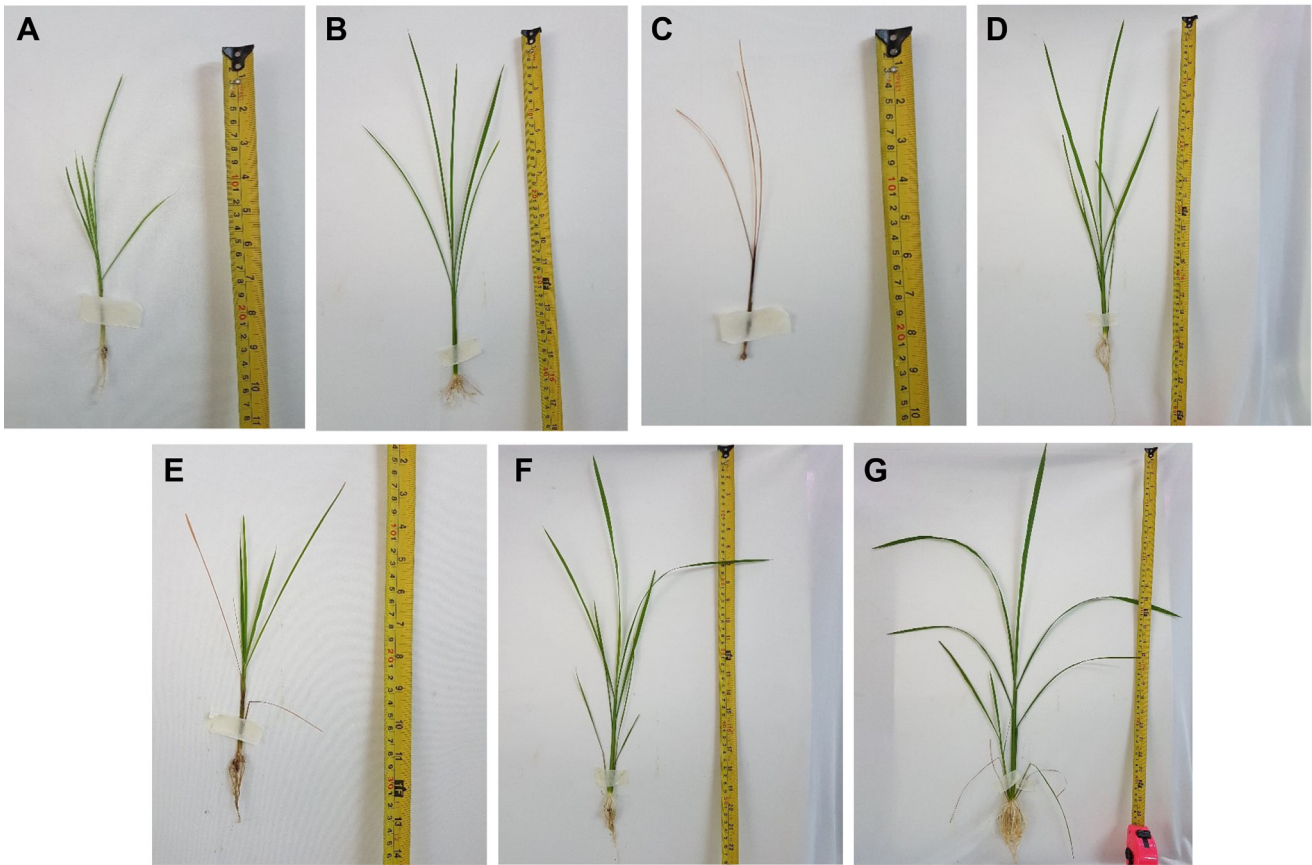
Scale	Affected leaf area
0	No lesions observed
1	Small brown specks of pin-point size or larger brown specks without sporulating centre
3	Lesion type is the same as in scale 2, but a significant number of lesions are on the upper leaves
5	Typical blast lesions infecting 4-10% of the leaf area
7	Typical blast lesions infection 26-50% of the leaf area
9	More than 75% leaf area affected

## References

- International Rice Research Institute. 2002. Standard evaluation system for rice (SES): find out how the qualities of rice are evaluated and scored in this authoritative sourcebook. URL <http://www.knowledgebank.irri.org/images/docs/rice-standard-evaluation-system.pdf> [24 March 2022].
- Ji, G.-H., Wei, L.-F., He, Y.-Q., Wu, Y.-P. and Bai, X.-H. 2008. Biological control of rice bacterial blight by *Lysobacter antibioticus* strain 13-1. *Biol. Control* 45:288-296.
- Yasmin, S., Hafeez, F. Y., Mirza, M. S., Rasul, M., Arshad, H., Zubair, M. and Iqbal, M. 2017. Biocontrol of bacterial leaf blight of rice and profiling of secondary metabolites produced by rhizospheric *Pseudomonas aeruginosa* BRp3. *Front. Microbiol.* 8:1895.
- Yoshida, S., Forno, D. A., Cock, J. H. and Gomez, K. A. 1976. Laboratory manual for physiological studies of rice. URL [https://pdf.usaid.gov/pdf\\_docs/PNAAE519.pdf](https://pdf.usaid.gov/pdf_docs/PNAAE519.pdf) [24 March 2022].



**Supplementary Fig. 1.** Secondary screening of BCAs-PGP isolates for antagonistic assay against *Xoo*, siderophore production and plant growth properties. (A) *In vitro* antagonism assay against *Xoo*. (B) A positive reaction forms a clear zone around the colony for potassium solubilization ability of isolate (KSB). (C) A positive reaction forms a clear zone around the colony for phosphate solubilization ability of isolate (PSB). (D) A positive reaction forms a clear zone around the colony for siderophore production at day 1. (E) A positive reaction forms a clear zone around the colony for siderophore production at day 2. BCA, biocontrol agents; PGP, plant growth promotion; *Xoo*, *Xanthomonas oryzae* pv *oryzae*.



**Supplementary Fig. 2.** Disease severity control of rice inoculated with BCAs-PGP endophytes at 45 DAT under plant house condition. (A) -BA, -Xoo. (B) +*Azospirillum brasilensis* Sp7, -Xoo. (C) -BA, +Xoo. (D) +*A. brasilensis* Sp7, +Xoo. (E) +USML8, +Xoo. (F) +USML9, +Xoo. (G) +USMR1, +Xoo. BCA, biocontrol agents; PGP, plant growth promotion; DAT, days after transplanting; Xoo, *Xanthomonas oryzae* pv *oryzae*.