

Pathogenicity of *Beauveria bassiana* on brown planthopper (BPH), whitebacked planthopper (WBPH), and green leafhopper (GLH)

R. M. Aguda and J. A. Litsinger, IRRI; and D. W. Roberts, insect pathologist, Insect Pathology Resource Center, Boyce Thompson Institute for Plant Research, Ithaca, New York 14853

B. bassiana is an entomogenous fungus important in microbial insect control. Several strains isolated from BPH, GLH, and WBPH in Asia were bioassayed to determine their virulence on planthoppers and leafhoppers in the laboratory.

Spores of each isolate, at 10¹⁴/ha, were suspended in sterile distilled water + 0.5% Tween 80 surfactant. Thirty-d-old rice plants were sprayed with the spore suspension at 2 ml/pot, based on a 300-litre spray volume/ha, and 20 insects/pot were placed in mylar tube cages. Dead insects were removed daily for 7 d and allowed to incubate for 1 d before microscope examination for infection.

Isolates E, RS149, and 101481-5 were the most virulent against all insect species (Table 1). RS149 and 101481-5 had higher virulence to BPH than to GLH and WBPH. BPH was most susceptible to *B. bassiana*. Isolates RS413, 102381-8C, and E had higher virulence to BPH and GLH than to WBPH.

In another test, isolates 102381-8C, GLH-8, and GLH-20 were the most virulent to BPH (Table 2). The other isolates except GLH-1 had moderate virulence. Isolates 102381-8C, GLH-4, and GLH-5 were most virulent against GLH. GLH-20 was more pathogenic to BPH

Table 1. Pathogenicity and comparative virulence of different *B. bassiana* isolates to BPH, GLH, and WBPH in the laboratory, IRRI, 1983.

Isolate (I) ^a	Infection ^b (%)			
	BPH	GLH	WBPH	I-means
RS149	53 a (a)	34 a (b)	16 a (c)	34 ab
RS413	36 abc (a)	35 a (a)	16 a (b)	29 b
RS252	30 bc (a)	29 a (a)	29 a (a)	29 b
102081-2	31 abc (a)	28 a (a)	18 a (a)	25 b
101481-5	49 ab (a)	29 a (b)	23 a (b)	33 ab
102381-8C	33 abc (a)	29 a (ab)	18 a (b)	26 b
E	50 ab (a)	41 a (ab)	26 a (b)	39 a
Untreated	0 d	0 b	0 b	0 c
T-means	35 (a)	28 (b)	18 (b)	

^aRS149 = French strain; RS252, RS413 and BTI Bb = US. strains; 102081-2, 102381-8C, and E from BPH in China; 101481-5 from GLH in China. ^bIn a column and in a row (in parentheses), means followed by a common letter are not significantly different at the 5% level by DMRT.

Table 2. Pathogenicity and comparative virulence of different *B. bassiana* isolates to BPH, GLH, and WBPH in the laboratory, IRRI, 1983.

Isolate (I) ^a	Infection ^b (%)			
	BPH	GLH	WBPH	I-means
GLH-1	14 c (a)	14 c (a)	24 a (ab)	17 c
GLH-3	30 abc (a)	14 c (a)	15 a (a)	20 bc
GLH-4	25 abc (ab)	40 ab (a)	11a (b)	25 bc
GLH-5	20 bc (a)	28 abc (a)	24 a (a)	24 bc
GLH-6	25 abc (a)	13 c (a)	23 a (a)	20 bc
GLH-8	43 ab (a)	20 bc (a)	33 a (a)	32 ab
GLH-9	34 abc (a)	19 c (a)	26 a (a)	26 bc
GLH-11	24 abc (a)	18 bc (a)	16 a (a)	19 bc
GLH-16	39 abc (a)	18 c (b)	25 a (ab)	27 bc
GLH-22	24 abc (a)	11 c (a)	18 a (a)	18 c
GLH-19	31 abc (a)	16 c (a)	25 a (a)	24 bc
GLH-20	51 a	11 c (b)	25 a (b)	29 abc
102081-2	29 abc (a)	24 bc (a)	19 a (a)	24 bc
102381-8C	46 ab (a)	53 a (a)	29 a (a)	43 a
Untreated	0 d	0 d	0 b	0 d
T-means	29 (a)	21 (ab)	20 (ab)	23

^aGLH 1-20 collected from the Philippines; 102081-2 and 102381-8C collected from BPH in China. ^bIn a column and in a row (in parentheses), means followed by a common letter are not significantly different at the 5% level by DMRT.

than to GLH and WBPH, and isolate GLH-4 was more virulent to GLH and BPH than to WBPH. The results suggest

that *B. bassiana* strains have potential as microbial agents to control BPH, GLH, and WBPH. □

Leaffolder (LF) outbreak in Haryana, India

K. S. Kushwaha, entomologist; and R. Singh, assistant scientist, Haryana Agricultural University Rice Research Station, Kaul 132021, Kurukshetra, Haryana, India

Before 1982 LF *Cnaphalocrocis medinalis* Guenée (Lepidoptera: Pyralidae) was a minor pest in Haryana, averaging 5-12%

infestation. In 1983 kharif, infestation caused 60-70% leaf damage. Infestation began the first week of Aug and continued to mid-Oct, probably encouraged by heavy rainfall in late Jul (197.9 mm) and Aug (264.1 mm). An average 20% damage was observed in Ambala, 27% in Karnal, 29% in Sirsa, and 31% in Kurukshetra. Populations were higher on the late transplanted crop. There were no differences in damage between scented and unscented varieties. □

***Cryptoblabes gnidiella*, a fern-feeding caterpillar, and its parasites**

Gubbaiah, rice entomologist, All-India Coordinated Rice Improvement Project, V. C. Farm, Mandya, Karnataka, India

In 1983 wet season, *Cryptoblabes gnidiella* (Millière) were feeding and breeding on azolla in and around the Mandya Rice Research Station. The semi-