FIGURES

Fig. 1: Five agro ecological zones of Bangladesh where blast fungus isolates were collected.

Fig. 2: Virulence frequencies of blast fungus isolates collected from A) AEZ23, B) AEZ19, C) AEZ13, D) AEZ28, and E) AEZ2, and F) all five AEZs combined against differential monogenic lines and susceptible checks.

Fig. 3: Dendrogram showing Pathogenic races of 100 blast isolates collected in Bangladesh.

TABLES

Table 1. Characteristics of international standard differential monogenic lines derived from Lijiangxintuanheigu by Hayashi *et al.* 2009.

Table 2. Pathogenic races of 100 blast fungus isolates collected in Bangladesh.

Table 3. Pathogenic races selected for the standard differential blast fungus isolates in Bangladesh.

SUPPLEMENTARY TABLE

Supplementary Table 1. Pathotypes of blast isolates categorized by the reaction pattern to differential lines for U group resistance genes *Pish*, *Pib*, *Pit*, *Pia* and LTH, and degree of diversity in AEZs.

Supplementary Table 2. Pathotypes of blast isolates categorized by the reaction pattern to differential lines for "U" group resistance genes *Pii*, *Pi3* and *Pi5*(t), and degree of diversity in AEZs.

Supplementary Table 3. Pathotypes of blast isolates categorized by the reaction pattern to differential lines for k group resistance genes *Pik-s*, *Pik-m*, *Pi1*, *Pik-h*, *Pik*, *Pik-p* and *Pi7*(t), and degree of diversity in AEZs.

Supplementary Table 4. Pathotypes of blast isolates categorized by the reaction pattern to differential lines for z group resistance genes *Pi9*, *Piz*, *Piz-5* and *Piz-t*, and degree of diversity in AEZs.

Supplementary Table 5. Pathotypes of blast isolates categorized by the reaction pattern to differential lines for ta group resistance genes *Pita-2*, *Pi12*(t), *Pita*, *Pi19*(t) and *Pi20*(t), and degree of diversity in AEZs.

Supplementary Table 1. Number of blast isolates in each pathotype categorized by the reaction pattern to differential varieties for "U" group corresponding to resistant genes *Pish, Pib, Pit, Pia and* LTH, and degree of diversity in AEZs.

Agro-Ecological Zones			No. of blast pathogen isolates (%) in each pathotype										Total	Diversity index
Reaction of DVs	Resistant genes		U01	U03	U21	U23	U33	U41	U43	U61	U63	U73		
	Pish	LTH	- +	- +	- +	- +	+ +	- +	- +	- +	- +	+ +		
	Pib	*Pia*	- -	- +	+ -	+ +	+ +	- -	- +	+ -	+ +	+ +		
	Pit		-	-	-	-	-	+	+	+	+	+		
AEZ23			0	3	3	0	0	1	4	2	6	1	**20**	**0.81**
AEZ19			0	2	0	1	1	1	1	2	10	2	**20**	**0.71**
AEZ13			2	1	0	2	0	0	1	1	9	3	**19**	**0.72**
AEZ28			1	2	1	1	0	3	1	0	6	5	**20**	**0.8**
AEZ2			1	0	1	1	0	0	4	1	10	3	**21**	**0.71**
Total			4	8	5	5	1	5	11	6	41	14	**100**	**0.77**

Each pathotypes were decided following the method of Hayashi and Fukuta (2009). " - " Indicates incompatible reactions and " + " indicates compatible reaction. Diversity index were calculated by the method of Simpson (1949).

Supplementary Table 2. Number of blast isolates in each pathotype categorized by the reaction pattern to differential varieties for "i" group corresponding to resistant genes *Pii, Pi3 and Pi5(t)*, and degree of diversity in AEZs.

Agro-Ecological Zones		No. of blast pathogen isolates (%) in each pathotype								Total	Diversity index
Reaction of DVs	Resistant genes	i0	i1	i2	i3	i4	i5	i6	i7		
	Pii	-	+	-	+	-	+	-	+		
	Pi3	-	-	+	+	-	-	+	+		
	Pi5(t)	-	-	-	-	+	+	+	+		
AEZ23		7	4	0	0	2	0	0	7	**20**	**0.71**
AEZ19		0	4	0	1	1	4	2	8	**20**	**0.75**
AEZ13		4	2	0	1	4	1	2	5	**19**	**0.81**
AEZ28		7	0	1	1	1	3	4	3	**20**	**0.79**
AEZ2		2	0	0	1	1	4	0	13	**21**	**0.57**
Total		20	10	1	4	9	12	8	36	**100**	**0.79**

Each pathotypes were decided following the method of Hayashi and Fukuta (2009). " - " Indicates incompatible reactions and " + " indicates compatible reaction. Diversity index were calculated by the method of Simpson (1949).

Supplementary Table 3. Number of blast isolates in each pathotype categorized by the reaction pattern to differential varieties for "k" group corresponding to resistant genes *Pik-s, Pik-m, Pi1, Pik-h, Pik, Pik-p and Pi7(t)*, and degree of diversity in AEZs.

Agro-Ecological Zones			No. of blast pathogen isolates (%) in each pathotype																
Resistant genes			k020	k040	k042	k046	k053	k057	K073	K077	k100	k101	k104	k105	k114	k117	k122	k127	k135
Pik-s	*Pik-m*	*Pik*	- - -	---	--	- - -	- ++	-++	-++	-++	+ --	+ -+	+ --	+- +	++-	+++	+- -	+-+	+++
	Pi1	*Pik-p*	+ -	- -	- +	- +	-+	-+	+ +	+ +	--	--	- -	--	- -	-+	++	++	+ -
	Pik-h	*Pi7(t)*	- -	+ -	+-	++	+-	++	+ -	+ +	- -	- -	-+	-+	-+	-+	- -	-+	-+
AEZ23			1	0	0	1	0	1	1	0	0	0	0	0	0	1	1	0	1
AEZ19			0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0
AEZ13			1	0	1	0	0	0	0	1	0	1	2	1	1	0	1	0	1
AEZ28			0	1	1	0	0	1	0	1	0	0	0	0	1	0	1	2	0
AEZ2			0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Total			2	2	3	1	1	2	1	2	1	1	2	1	2	1	3	3	2

Each pathotypes were decided following the method of Hayashi and Fukuta (2009). " - " Indicates incompatible reactions and " + " indicates compatible reaction. Diversity index were calculated by the method of Simpson (1949).

(Continued Table 3)

Agro-Ecological Zones			No. of blast pathogen isolates (%) in each pathotype														Total	Diversity index
Resistant genes			k137	k141	K143	k146	k147	k152	k157	k166	k167	k173	k174	k175	k176	k177		
Pik-s	*Pik-m*	*Pik*	+++	+-+	+ -+	+- -	+-+	++ -	+++	+ - -	+ -+	+++	+ +-	+++	++-	+++		
	Pi1	*Pik-p*	++	- -	- +	-+	-+	-+	-+	++	++	++	+-	+ -	++	++		
	Pik-h	*Pi7(t)*	- +	+ -	+ -	++	++	+ -	++	++	++	+-	++	++	++	++		
AEZ23			0	0	0	2	1	0	4	0	1	1	1	1	0	2	**20**	**0.91**
AEZ19			1	0	0	0	0	0	6	0	4	2	0	0	0	5	**20**	**0.79**
AEZ13			0	3	1	0	1	1	0	1	0	0	0	0	0	2	**19**	**0.92**
AEZ28			0	0	0	0	0	0	3	0	1	3	0	0	1	4	**20**	**0.89**
AEZ2			1	0	1	0	1	0	0	0	2	1	0	1	0	11	**21**	**0.7**
Total			2	3	2	2	3	1	13	1	8	7	1	2	1	24	**100**	**0.9**

Each pathotypes were decided following the method of Hayashi and Fukuta (2009). " - " Indicates incompatible reactions and " + " indicates compatible reaction. Diversity index were calculated by the method of Simpson (1949).

Supplementary Table 4. Number of blast isolates in each pathotype categorized by the reaction pattern to differential varieties for " z" group corresponding to resistant genes *Pi9, Piz, Piz-5* and *Piz-t*, and degree of diversity in AEZs.

Agro-Ecological Zones			No. of blast pathogen isolates (%) in each pathotype													Total	Diversity index
Reaction of DVs	Resistant genes		z00	z02	z04	z05	z06	z07	Z10	Z11	z12	z14	z15	z16	z17		
	Pi9(t)	*Piz*	- -	- -	- +	- +	- -	- +	+ -	+ +	+ -	+ -	+ +	+-	+ +		
		Piz-5	-	+	-	-	+	+	-	-	+	-	-	+	+		
		Piz-t	-	-	+	+	+	+	-	-	-	+	+	+	+		
AEZ23			3	1	3	1	8	2	0	0	0	1	0	1	0	**20**	**0.78**
AEZ19			3	1	1	0	9	1	0	0	0	3	0	2	0	**20**	**0.74**
AEZ13			2	4	4	0	4	3	0	1	0	0	0	0	1	**19**	**0.83**
AEZ28			3	1	4	0	5	2	1	0	2	0	0	2	0	**20**	**0.84**
AEZ2			1	0	3	1	7	1	1	0	0	0	1	4	2	**21**	**0.81**
Total			12	7	15	2	33	9	2	1	2	4	1	9	3	**100**	**0.83**

Each pathotypes were decided following the method of Hayashi and Fukuta (2009). " - " Indicates incompatible reactions and " + " indicates compatible reaction. Diversity index were calculated by the method of Simpson (1949).

Supplementary Table 5. Number of blast isolates in each pathotype categorized by the reaction pattern to differential varieties for " ta" group corresponding to resistant genes *Pita-2, Pi12(t), Pita, Pi19(t)* and *Pi20(t)*, and degree of diversity in AEZs.

Agro-Ecological Zones			No. of blast isolates (%) in each pathotype															
	Resistant genes			ta000	ta001	ta002	ta003	ta020	ta021	ta022	ta032	ta033	ta132	ta203	ta211	ta333	ta400	ta401
Reaction of DVs	*Pita-2*	*Pita*	*Pi19(t)*	- - -	- - +	- - -	- - +	- - -	- - +	- - -	- + -	- + +	+ + -	- - +	- + +	+ + +	- - -	- - +
	Pita-2	*Pita*	*Pi20(t)*	- - -	- - -	- - +	- - +	- + -	- + -	- + +	- + +	- + +	- + +	+ - +	+ - -	+ + +	- - -	- - -
	Pi12(t)			-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
AEZ23				0	0	0	0	0	2	1	1	2	0	0	1	0	3	0
AEZ19				0	0	1	1	0	0	0	1	0	0	0	0	0	2	0
AEZ13				3	0	1	1	1	0	0	0	0	0	0	0	0	0	0
AEZ28				0	1	0	0	0	1	2	0	0	0	1	0	0	0	1
AEZ2				0	0	1	0	0	1	0	0	2	1	1	0	1	1	0
Total				3	1	3	2	1	4	3	2	4	1	2	1	1	6	1

Each pathotypes were decided following the method of Hayashi and Fukuta (2009). " – " Indicates incompatible reactions and " + " indicates compatible reaction. Diversity index were calculated by the method of Simpson (1949).

(Continued Table 5).

Agro-Ecological Zones			No. of blast isolates (%) in each pathotype															
	Resistant genes			ta402	ta403	ta410	ta411	ta413	ta421	ta422	ta423	ta431	ta432	ta433	ta502	ta533	ta603	ta622
Reaction of DVs	*Pita-2*	*Pita*	*Pi19(t)*	- - -	- - +	- + -	- + +	- + +	- - +	- - -	- - +	- + +	- + -	- + +	+ - -	+ + +	- - +	- - -
	Pita-2	*Pita*	*Pi20(t)*	- - +	- - +	- - -	- - -	- - +	- + -	- + +	- + +	- + -	- + +	- + +	- - +	- + +	+ - +	+ + +
	Pi12(t)			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
AEZ23				2	0	0	0	1	1	2	1	0	0	0	0	0	0	1
AEZ19				0	3	0	0	0	0	1	3	0	0	4	0	0	1	0
AEZ13				0	4	0	1	0	2	1	1	0	0	0	0	0	0	1
AEZ28				0	1	0	0	1	1	2	3	1	0	0	1	1	0	0
AEZ2				0	1	1	0	0	0	0	1	0	1	4	0	0	0	0
Total				2	9	1	1	2	4	6	9	1	1	8	1	1	1	2

(Continued Table 5)

Agro-Ecological Zones				No. of blast isolates (%) in each pathotype									Total	Diversity index
Reaction of DVs	Resistant genes			ta623	ta632	ta633	ta713	ta721	ta723	ta732	ta733			
	Pita-2	*Pita*	*Pi19(t)*	- - +	- + -	- + +	+++	+ - +	+-+	++ -	+++			
	Pita-2	*Pita*	*Pi20(t)*	++ +	++ +	+++	+-+	++-	+++	++ +	+++			
	Pi12(t)			+	+	+	+	+	+	+	+			
AEZ23				2	0	0	0	0	0	0	0		20	0.91
AEZ19				1	0	0	0	0	0	0	2		20	0.88
AEZ13				0	1	1	0	0	0	0	1		19	0.89
AEZ28				1	0	2	0	0	0	0	0		20	0.92
AEZ2				0	0	1	1	1	1	1	0		21	0.92
Total				4	1	4	1	1	1	1	3		100	0.95

Each pathotypes were decided following the method of Hayashi and Fukuta (2009). " - " Indicates incompatible reactions and " + " indicates compatible reaction. Diversity index were calculated by the method of Simpson (1949).