

( )

\*

( : - : )

**AG1-IA**

*Rhizoctonia solani*

) (PDBroth)

( ) (

(MM)

(FI)

(RG)

**RLH**

(Lesion Height Relative)

FI

RG MM

MM ( )

(DMRT 5%) FI RG

*Rhizoctonia solani* *Thanatephorus cucumeris*

(Ou, 1985)

Miayke

AG1-IA

(1984) Hashiba .

*Rhizoctonia solani* Kühn

*Thanatephorus cucumeris* (Frank) Donk

(Vidhyasekaran

(Hori, 1980)

Hashiba, 1984; Hashioka, 1991; *et al.*, 1997

.Bonman *et al.*, 1992)

.(Marchetti, 1983)

.(Banniza *et al.*, 1999)

(Ou,

1985; Mew & Rosales, 1986; Cu *et al.*, 1996;

.Munish & Singh, 2000; Eizenga *et al.*, 2002)

(Pinson *et al.*, 2005)

(Lee & Rush, 1983)

R. AG-1 IA

*solani*

.(Damicone *et al.*, 1993)

(Groth &

.Nowick, 1992; Zou *et al.*, 2000)

.(Premalatha Dath, 1990)

)

(

(Padasht- Dehkaaei *et al.*, 2007)

.(Lee & Rush, 1983)

(Groth & Nowick, 1992).

:(Mycelial mass=MM)

PDA

(Potato Dextrose Broth)

°C

( rpm )

(*Rhizoctonia solani*)

°C

PDA

(Freshly infected rice

:stem=FI)

× cm

°C

:( )

(Rice grain/Rice

:hull=RG)

( )

°C

PDA

(*R. solani*)

× cm

(rubber band)

:

IRRISTAT

:

( )

(Sharma *et al.*,

:1990b)

%Relative =  $\frac{\text{Lesion Height}}{\text{Lesion Height}} \times$

:

:

IRRISTAT

Excel SPSS ver.12

/

$\frac{1}{2}$

/

R87

/

( )

:

...

:

(FI)

(%RLH)

*Rhizoctonia solani*

		MM	RG		
/	FI	/	/	/ c**	R 129
				/ b	R 85
/	/	/	( / )	/ a	R 87
				/ ab	R 95
/	MM	RG	FI	/ bc	R 64
				/ bc	R 110
/	MM	RG	FI	/ ab	R 43
				/ c	R 144
/	MM	RG	FI	/ c	R 131
				( )	:*
RG	MM	RG	MM	%	:**
				(DMRT)	

(Pinson *et al.*, 2005)

(5%)

( )

) MM ( ) RG

(

( ) FI

(MM)

FI

RG

MM

( )

( / )

FI RG

(Hashioka, 1991;

Bonman *et al.*, 1992; Xie *et al.*, 1992; Pinson *et al.*, 2005)

MM

MM

MM

(Marchetti, 1983; Marchetti & Bollich, 1991)

( )

---

\* (RLH%)

---

/	/	/	/	/	ab	
/	/	/	/	/	b	** S1
/	/	/	/	/	a	*** RG
/	/	/	/	/	ab	
/	/	/	/	/	ab	
/	/	/	/	/	a	
/	/	/	/	/	b	S1
/	/	/	/	/	a	MM
/	/	/	/	/	ab	
/	/	/	/	/	ab	
/	/	/	/	/	a	
/	/	/	/	/	bc	S1
/	/	/	/	/	bc	FI
/	/	/	/	/	c	
/	/	/	/	/	ab	

---

...

:

/	/	/	/	/	b		
/	/	/	/	/	b	S2	
/	/	/	/	/	b	RG	
/	/	/	/	/	b		
/	/	/	/	/	a		
/	/	/	/	/	bc	S2	
/	/	/	/	/	ab	MM	
/	/	/	/	/	c		
/	/	/	/	/	bc		
/	/	/	/	/	a		
/	/	/	/	/	a	S2	
/	/	/	/	/	a	FI	
/	/	/	/	/	a		
/	/	/	/	/	a		
/	/	/	/	/	b	S3	
/	/	/	/	/	bc	RG	
/	/	/	/	/	c		
/	/	/	/	/	bc		
/	/	/	/	/	a		
/	/	/	/	/	a	S3	
/	/	/	/	/	b	MM	
/	/	/	/	/	c		
/	/	/	/	/	bc		
/	/	/	/	/	a		
/	/	/	/	/	ab	S3	
/	/	/	/	/	bc	FI	
/	/	/	/	/	d		
/	/	/	/	/	cd		
/	/	/	/	/	a		

=RLH% : \*  
 S3 S2 S1 : \*\*  
 =RG : \*\*\*  
 =MM  
 =FI

*Rhizoctonia solani*

(DMRT 5%)

/	a	/	a	/	a	/	a	/	ab	*RG	
/	a	/	a	/	a	/	a	/	a	MM	**S1
/	b	/	b	/	b	/	b	/	b	FI	
/	a	/	a	/	a	/	ab	/	a	RG	
/	a	/	a	/	a	/	a	/	a	MM	S2
/	a	/	a	/	a	/	b	/	a	FI	
/	ab	/	a	/	a	/	a	/	b	RG	
/	a	/	a	/	a	/	a	/	a	MM	S3
/	b	/	a	/	a	/	a	/	ab	FI	

*Rhizoctonia solani*

=RG : \*  
 =MM  
 =FI  
 S3 S2 S1 : \*\*

(DMRT 5%)

FI	MM	RG	FI	MM	RG	FI	MM	RG*	
/	/	/	/	/	/	/	/	/	** (RLH)
/	/	/	/	/	/	/	/	/	
/	/	/	/	/	/	/	/	/	
/	/	/	/	/	/	/	/	/	
/	/	/	/	/	/	/	/	/	

*Rhizoctonia solani*

= RG :\*

=MM

=FI

=RLH% :\*\*

(1990b) Sharma *et al.*

(PDA)

PDA

(2002) Singh *et al.*

(Ou, 1985; Sharma *et al.*, 1990a; Cu *et al.*, 1996; Singh *et al.*, 2002)

( )

( )

PDA

Prasad &

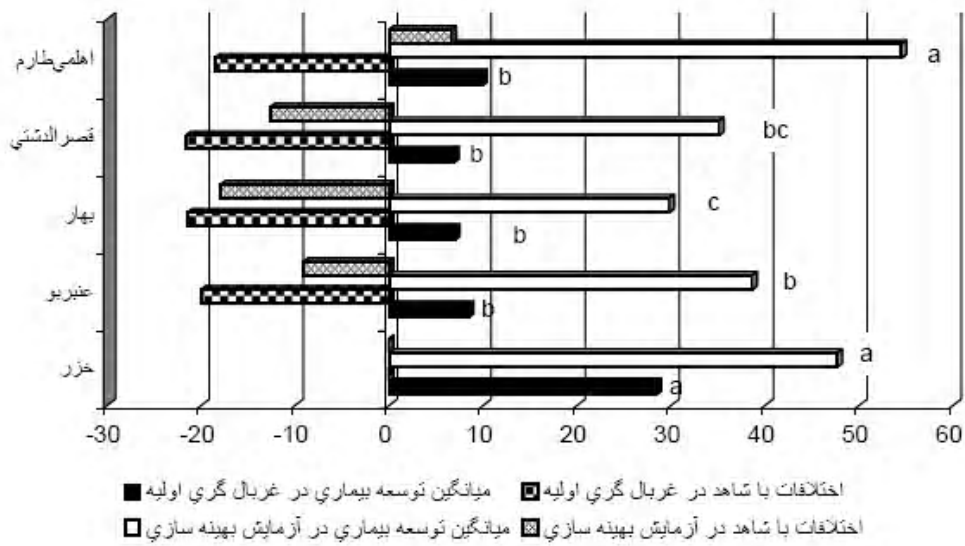
(2008) Eizenga



( )

(Padasht- Dehkaei *et al.*, 2007)

( ) /  
/



( )

(LSD)

( )

## REFERENCES

1. Banniza, S., Sy, A. A., Bridge, P. D., Simons, S. A. & Holderness, M. (1999). Characterization of populations of *Rhizoctonia solani* in paddy rice fields in Cote d' Ivoire. *Phytopathology*, 89, 414-20.
2. Bonman, J. M., Ghush, G. S. & Nelson, R. J. (1992). Breeding rice for resistance to pests. *Annual Review Phytopathol*, 30, 507-528.
3. Cu, R. M., Mew, T. W. Cassman, K. G. & Teng, P. S. (1996). Effect of sheath blight on yield in tropical, intensive rice production system. *Plant Disease*, 80, 1103-1108.
4. Damicone, J. P., Patel, M. V. & Moor, W. F. (1993). Density of sclerotia of *Rhizoctonia solani* and incidence of sheath blight in rice fields in Mississippi. *Plant Disease*, 77, 257-60.
5. Eizenga, G. C., Lee, F. N. & Rutger, J. N. (2002). Screening *Oryza* species plants for rice sheath blight resistance. *Plant Disease*, 86, 808-812.
6. Groth, D. E. & Nowick, E. M. (1992). Selection for resistance to rice sheath blight through number of infection cushions and lesion type. *Plant Disease*, 76, 721-723.
7. Hashiba, T. (1984). Estimating method of severity and yield loss rice sheath blight disease. *Bulletin of the Hokuriku National Agricultural Experiment Station*, 26, 115-164.
8. Hashioka, Y. (1991). Inheritance of resistance to sheath blight in rice varieties. *Annual of the Phytopstheological Society of Japan*, 15, 21-26.
9. Hori, M. (1980). Sheath blight of rice. In: *Rice protection in Japan*, Part 1. Plant Pathology. PP. 80-87.
10. Lee, F. N. & Rush, M. C. (1983). Rice sheath blight: A major rice disease. *Plant Disease*, 67, 829-32.
11. Marchetti, M. A. (1983). Potential impact of sheath blight on yield and milling quality of short-statured rice lines in the southern united states. *Plant Disease*, 67, 162-65.
12. Marchetti, M. A. & Bollich, C. N. (1991). Quantification of the relationship between sheath blight severity and yield loss in rice. *Plant Disease*, 75, 773-775.
13. Mew, T. W. & Rosales, M. C. (1986). Bacterization of rice plants for control of sheath blight caused by *Rhizoctonia solani*. *Phytopathology*, 76, 1260-1264.
14. Munish, G. D. & Singh, M. (2000). Development of sheath blight of rice in relation to plant growth stages. *Plant Disease*, 15(2), 182-185.
15. Ou, S. H. (1985). *Rice Diseases*. 2<sup>nd</sup> ed., C. A. B. 380 p.
16. Padasht-Dehkaei, F., Okhovvat, S. M. & Javan-Nikkha, M. (2007). Investigation of the resistance source to sheath blight disease in some Iranian rice cultivars. In: *Proceedings of 59<sup>th</sup> International Symposium on Crop Protection*. Belgium. P. 288.
17. Pinson, S. R. M., Capdeville, F. M. & Oard, J. H. (2005). Confirming QTLs and finding additional loci conditioning sheath blight resistance in rice using recombinant inbred lines. *Crop Science*, 45, 503-510.
18. Prasad, B. & Eizenga, G. C. (2008). Rice sheath blight disease resistance identified in *Oryza* ssp. accessions. *Plant Disease*, 92, 1503-1509.
19. Premalatha Dath, A. (1990). *Sheath Blight Disease of Rice and Its Management*. Associated Publishing Company, New Delhi, India.
20. Sharma, N. R., Teng, P. S. & Olivares, F. M. (1990a). Comparison of assessment methods for rice sheath blight disease. *Philipp. Phytopathology*, 26, 20-24.
21. Sharma, N. R., Teng, P.S. & Olivares, F. M. (1990b). Effect of inoculum source on sheath blight (ShB) development. *IRRN*, 15(6), 18-19.
22. Singh, A., Rohilla, R., Singh, U. S., Savary, S., Willocquet, L. & Duveiller, E. (2002). An improved technique for sheath blight of rice caused by *Rhizoctonia solani*. *Canadian Journal of Plant Pathology*, 24, 65-68
23. Vidhyasekaran, P., Roby Ponmalar, T., Samiyappan, R., Velazhan, R., Vimala, R., Ramanathan. A., Paranidharan, V. & Muthukrishnan, S. (1997). Host-Specific toxin production by *Rhizoctonia solani*, the rice sheath blight pathogen. *Phytopathology*, 87, 1258-1263.
24. Xie, Q. J., Linscombe, S. D., Rush, D. C. & Jodari-karimi, F. (1992). Registration of LSBR-33 and LSRB-5 sheath blight resistant germplasm lines of rice. *Crop Science*, 32, 507.
25. Zou, J. H., Pan, X. B., Chen, Z. X., Xu, J. Y. & Lu, J. F. (2000). Mapping quantitative trait loci controlling sheath blight resistance in two rice cultivars (*Oryza sativa* L.). *Theoretical and Applied Genetics*, 101, 569-573.