

Screening of cotton cultivars/genotypes against Bacterial blight caused by *Xanthomonas axonopodis* pv. *malvacearum* (Smith)

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ABSTRACT : Nine genotypes were screened alongwith check LRA 5166 against bacterial blight of cotton during 2009-2010 and 2010-2011 under epiphytotic conditions at Cotton Research Unit, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola. None of the genotype was found immune and resistant against bacterial blight. Four genotypes were found moderately resistant (ARBH 104, NDLH 1905, BS 79 and AKH 0205), 2 genotypes moderately susceptible and 4 genotypes susceptible to bacterial blight alongwith check LRA 5166.

Key words : Bacterial blight, cotton, epiphytotic, immune, resistant

Cotton (*Gossypium* sp) is an important cash crop in India. Among the many factors responsible for affecting cotton yield, the diseases have one of the major role (Chattonnavar *et al.*, 2001). Bacterial blight caused by *Xanthomonas axonopodis* pv. *malvacearum* (Smith) is known to occur in all cotton growing areas with an annual loss varying from 5 to 25 per cent. Diseases predominant in Vidharbha region and extent of yield losses were 0.83 to 25.83 per cent intensity in popular grown varieties/ hybrids (Patil and Ghoderao, 2002). Different disease management measures *viz.*, use of chemical, biological, resistant variety and cultural methods are in existence. Adoption of resistant/ tolerant varieties, however, remains the most viable, environmentally safe and less expensive for the management of diseases. Therefore, the present investigations have been undertaken to

ascertain the resistant cultivar/ genotypes of cotton to minimize the losses under artificial epiphytotic conditions.

Nine promising cultivars were selected on the basis of earlier performance in AICCIP screening trial during 2008-2009. The reaction of these cultivars/ genotypes was ascertained for confirmation under natural epiphytotic conditions during 2009-2010 and 2010-2011 at Cotton Research Unit, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola. Each cultivar was sown in rod row trial of 6 m length with 60 cm plant to plant spacing. Every fourth row of test cultivar and around the experiment, infector row using susceptible variety LRA 5166 as a check for comparing the disease pressure was planted. The disease pressure was created by inoculum spray (10^7 cfu/ml) at 40 days after sowing. The observations were recorded on the basis of 0-4

Table 1. Cotton cultivars/genotypes showing reaction against bacterial blight disease during 2009-2010 and 2010-2011

Cultivars/ genotypes	Per cent disease intensity bacterial blight (PDI)			Grade	Reaction
	2009-2010	2010-2011	Pooled		
ARBH 104	0.00 (4.05)	9.17(17.63)	4.84(10.84)	2	MR
H 1353	15.00 (22.79)	18.06(25.15)	16.53(23.97)	3	MS
NDLH 1905	9.17 (17.63)	9.38(17.83)	9.28(17.73)	2	MR
BS 79	10.00 (18.43)	9.72(18.17)	9.86(18.30)	2	MR
NH 633	25.83 (30.55)	22.92(28.60)	24.38(29.57)	4	S
CCH 2623	26.67 (31.09)	37.50(37.76)	32.09(34.43)	4	S
CCH 2629	25.83 (30.55)	23.61(29.07)	24.72(29.81)	4	S
IH 66	19.17 (25.97)	15.83(23.45)	17.50(24.17)	3	MS
AKH 0205	6.67 (14.97)	9.17(17.63)	7.92(16.30)	2	MR
LRA 5166 (check)	24.17 (29.45)	25.00(30.00)	24.59(29.72)	4	S
P= 0.05	-	-	7.81	-	-

Figures in parenthesis are arc sine transformed values

point grade scale [0.0grade- Immune (I), 1 to 5 per cent grade- Resistant (R), 6 to 10 per cent grade- Moderately Resistant (MR), 11 to 20 per cent Moderately Susceptible (MS) and above 20 per cent Susceptible (S)].

Among nine cultivars/ genotypes none of cultivar/ genotype was found immune and resistant. These finding corroborates the earlier results of Singh *et al.*, (2000), reported that none of the cotton entries was immune to bacterial blight. Four cultivars/ genotypes were categorized as moderately resistant (MR) *viz.*, ARBH 104, NDLH 1905, BS 79 and AKH 0205 (2 Grade). While two cultivars/ genotypes were grouped under moderately susceptible (MS) *viz.*, H 1353 and IH 66 (3 Grade). The remaining cultivars were found susceptible (4 Grade) to bacterial blight disease (Table 1).

REFERENCES

- Chattannavar, S. N., Hegde, Prakash., Hiremath, S. V., Gaddankeri, M. A. and Khadi, B. M. 2001.** Bioagents in controlling cotton foliar diseases. *J. Cotton Res. Dev.* **15** : 247-48.
- Patil, M. R. and Goderao, B. N. 2002.** Predominance of Bacterial blight and Grey mildew on cotton varieties/ hybrids in central India. *J. Cotton Res. Dev.* **16** : 235-36.
- Singh, D., Singh, R. and Garg, H. R. 2000.** Evaluation of cotton cultivars/ germplasm lines against bacterial blight caused by *Xanthomonas axonopodis* pv. *malvacearum*. *J. Cotton Res. Dev.* **14** : 117-18.

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