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## Study of morphological characters angle of leaf axis, leaf colour and leaf glossiness responsible for resistant to onion thrips

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### Abstract

A field experiment was carried out to evaluate the susceptibility or resistance of different onion genotypes against onion thrips at Vegetable Improvement Project, Research Farm Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra, during *Rabi* season of the year 2013-14. Every plant has an inbuilt mechanism to resist the attack of the pest consisting various bio-physical character.

It could be seen from the data recorded at 30 DAT on average angle of leaf axis indicated that the angle of leaf axis of genotypes under the trial ranged from  $3.50^0$  to  $13.85^0$ . Highest angle of leaf axis was observed in BSRO-1229 ( $13.85^0$ ), while the lowest angle of leaf axis was observed in BSRO-1246 ( $3.50^0$ ). The negative correlation exist between angle of leaf axis and thrips population ( $-0.926^{**}$ ).

It could be seen from the data recorded at 30 DAT, there were two categories of foliage colour yellow green and blue green was observed. The eleven genotypes having yellow green colour *viz.*, BSRO-1229, BSRO-1227, OSR-1379, OSR-1372, OSR-1347, BSRO-1188, OSR-1359, OSR-1357, OSR-1352, OSR-1349, OSR-1354 and the remaining nine genotypes are blue green colour foliage *viz.*, OSR-1362, ASRO-1285, ASRO-1289, OSR-1364, ASRO-1207, ASRO-1291, BSRO-1253, ASRO-1201, BSRO-1246. The yellow green colour foliage genotypes were having resistance to thrips and the blue green colour foliage genotypes were susceptible to thrips.

It could be seen from the data recorded at 30 DAT, the onion genotypes were categorized under two types of foliage such as glossy foliage and non glossy foliage. The majority of genotypes *viz.*, BSRO-1229, BSRO-1227, OSR-1379, OSR-1372, OSR-1347, BSRO-1188, OSR-1359, OSR-1357, OSR-1352, OSR-1349, OSR-1354 were having glossy foliage and the remaining OSR-1362, ASRO-1285, ASRO-1289, OSR-1364, ASRO-1207, ASRO-1291, BSRO-1253, ASRO-1201, BSRO-1246 were having non glossy foliage. The glossy foliage genotypes were having resistance to thrips and the non glossy foliage genotypes were susceptible to thrips.

**Keywords:** Genotypes, onion thrips, angle of leaf axis, yellow green, blue green, glossy foliage, non glossy foliage, resistance, susceptible

### Introduction

#### Material and Methods

Observations were recorded on characters *viz.*, leaf angle between innermost leaves, leaf colour and leaf glossiness of 20 genotypes. The leaves of 30 days old crop in each entry were selected and observed for the above mentioned characters. The technique followed for each character is as follows

#### Angle of leaf axis

Leaf angle between top most two opened leaves were assessed by using protractor.

#### Leaf colour

Visual observation was recorded on the leaf colour with colour chart of different genotypes and categorized as yellow green and blue green. The above characters were correlated with thrips population.

#### Leaf glossiness

Visual observation was recorded on the leaf glossiness of different genotypes and categorized as glossy foliage and non glossy foliage. The above characters were correlated with thrips population.

#### Results and Discussion

Every plant has an inbuilt mechanism to resist the attack of the pest consisting various bio-physical character. Hence an attempt was made to study the mechanism of resistance in onion genotypes against thrips.

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**Angle of leaf axis**

It could be seen from the Table 1 that the data recorded at 30 DAT on average angle of leaf axis indicated that the angle of leaf axis of genotypes under the trial ranged from 3.50<sup>0</sup> to 13.85<sup>0</sup>. Highest angle of leaf axis was observed in BSRO-1229 (13.85<sup>0</sup>), while the lowest angle of leaf axis was observed in BSRO-1246 (3.50<sup>0</sup>). The negative correlation exist between angle of leaf axis and thrips population (-0.926\*\*).

**Leaf colour**

It could be seen from the Table 2 that the data recorded at 30 DAT, there were two categories of foliage colour yellow green and blue green was observed. The eleven genotypes having yellow green colour *viz.*, BSRO-1229, BSRO-1227, OSR-1379, OSR-1372, OSR-1347, BSRO-1188, OSR-1359, OSR-1357, OSR-1352, OSR-1349, OSR-1354 and the remaining nine genotypes are blue green colour foliage *viz.*, OSR-1362, ASRO-1285, ASRO-1289, OSR-1364,

ASRO-1207, ASRO-1291, BSRO-1253, ASRO-1201, BSRO-1246. The yellow green colour foliage genotypes were having resistance to thrips and the blue green colour foliage genotypes were susceptible to thrips.

**Leaf glossiness**

It could be seen from the Table 3 that the data recorded at 30 DAT, the onion genotypes were categorized under two types of foliage such as glossy foliage and non glossy foliage. The majority of genotypes *viz.*, BSRO-1229, BSRO-1227, OSR-1379, OSR-1372, OSR-1347, BSRO-1188, OSR-1359, OSR-1357, OSR-1352, OSR-1349, OSR-1354 were having glossy foliage and the remaining OSR-1362, ASRO-1285, ASRO-1289, OSR-1364, ASRO-1207, ASRO-1291, BSRO-1253, ASRO-1201, BSRO-1246 were having non glossy foliage. The glossy foliage genotypes were having resistance to thrips and the non glossy foliage genotypes were susceptible to thrips.

**Table 1:** Angle of leaf axis

Sr. No.	Varieties	Category (Resistant/susceptible)	Angle of leaf axis( <sup>0</sup> )	Thrips population /plant
1	BSRO-1229	Highly resistant	13.85	13.60
2	BSRO-1227	Highly resistant	12.93	14.08
3	OSR-1379	Resistant	12.50	15.73
4	OSR-1372	Resistant	12.30	17.80
5	OSR-1347	Resistant	11.80	17.93
6	BSRO-1188	Resistant	10.80	18.87
7	OSR-1359	Resistant	10.25	19.00
8	OSR-1357	Resistant	10.20	19.20
9	OSR-1352	Resistant	9.80	19.53
10	OSR-1349	Resistant	9.70	19.87
11	OSR-1354	Resistant	9.60	20.40
12	OSR-1362	Susceptible	9.50	23.07
13	ASRO-1285	Susceptible	9.00	23.07
14	ASRO-1289	Susceptible	8.80	23.60
15	OSR-1364	Susceptible	8.60	23.80
16	ASRO-1207	Susceptible	8.40	25.86
17	ASRO-1291	Susceptible	8.40	28.53
18	BSRO-1253	Susceptible	7.50	28.60
19	ASRO-1201	Susceptible	4.60	28.73
20	BSRO-1246	Highly susceptible	3.50	30.00
	S.E. ±	-	0.03	0.44
	C.D. at 5%	-	0.09	1.30

Angle of leaf axis = (<sup>0</sup>)

**Table 2:** Leaf colour

Sr. No.	Varieties	Category (Resistant/susceptible)	Leaf Colour	Thrips population /plant
1	BSRO-1229	Highly resistant	Yellow Green	13.60
2	BSRO-1227	Highly resistant	Yellow Green	14.08
3	OSR-1379	Resistant	Yellow Green	15.73
4	OSR-1372	Resistant	Yellow Green	17.80
5	OSR-1347	Resistant	Yellow Green	17.93
6	BSRO-1188	Resistant	Yellow Green	18.87
7	OSR-1359	Resistant	Yellow Green	19.00
8	OSR-1357	Resistant	Yellow Green	19.20
9	OSR-1352	Resistant	Yellow Green	19.53
10	OSR-1349	Resistant	Yellow Green	19.87
11	OSR-1354	Resistant	Yellow Green	20.40
12	OSR-1362	Susceptible	Blue Green	23.07
13	ASRO-1285	Susceptible	Blue Green	23.07
14	ASRO-1289	Susceptible	Blue Green	23.60
15	OSR-1364	Susceptible	Blue Green	23.80
16	ASRO-1207	Susceptible	Blue Green	25.86
17	ASRO-1291	Susceptible	Blue Green	28.53
18	BSRO-1253	Susceptible	Blue Green	28.60
19	ASRO-1201	Susceptible	Blue Green	28.73
20	BSRO-1246	Highly susceptible	Blue Green	30.00
	S.E. ±	-	-	0.44
	C.D. at 5%	-	-	1.30

**Table 3:** Leaf glossiness

Sr. No.	Varieties	Category (Resistant/susceptible)	Leaf Glossiness	Thrips population /plant
1	BSRO-1229	Highly resistant	GF	13.60
2	BSRO-1227	Highly resistant	GF	14.08
3	OSR-1379	Resistant	GF	15.73
4	OSR-1372	Resistant	GF	17.80
5	OSR-1347	Resistant	GF	17.93
6	BSRO-1188	Resistant	GF	18.87
7	OSR-1359	Resistant	GF	19.00
8	OSR-1357	Resistant	GF	19.20
9	OSR-1352	Resistant	GF	19.53
10	OSR-1349	Resistant	GF	19.87
11	OSR-1354	Resistant	GF	20.40
12	OSR-1362	Susceptible	NGF	23.07
13	ASRO-1285	Susceptible	NGF	23.07
14	ASRO-1289	Susceptible	NGF	23.60
15	OSR-1364	Susceptible	NGF	23.80
16	ASRO-1207	Susceptible	NGF	25.86
17	ASRO-1291	Susceptible	NGF	28.53
18	BSRO-1253	Susceptible	NGF	28.60
19	ASRO-1201	Susceptible	NGF	28.73
20	BSRO-1246	Highly susceptible	NGF	30.00
	S.E. $\pm$	-	-	0.44
	C.D. at 5%	-	-	1.30

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