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Screening of Pearl Millet Germplasms Against Drechslera Leaf Spot Disease under Artificial Inoculation Conditions in Arid Western Plains of Rajasthan

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ABSTRACT: Present investigation revealed that, forty germplasms were evaluated against *D. setariae* under artificial inoculation conditions during *Kharif* 2019 and *kharif* 2020. None of the germplasms were found immune (I), highly resistant (HR), resistant (R) and none germplasms were also reported as susceptible (S) and highly susceptible (HS) against *D. setariae* on pearl millet germplasms. Seven germplasms Local germplasm-1, Local germplasm-2, Local germplasm-4, Sardar Sahar-646, Sardar Sahar-656, Sardar Sahar-658 and Sardar Sahar-685 were observed as moderately resistant (MR). Six germplasms Local germplasm-3, Local germplasm-15, Sardar Sahar-651, Sardar Sahar-662, Sardar Sahar-664, Sardar Sahar-677 were assessed as low resistant (LR). Twelve germplasms Local germplasm-5, Local germplasm-7, Local germplasm-8, Local germplasm-16, Sardar Sahar-640, Sardar Sahar-645, Sardar Sahar-647, Sardar Sahar-654, Sardar Sahar-660, Sardar Sahar-674, Sardar Sahar-680, Sardar Sahar-714 were recorded as mesothetic (M). Six germplasms Local germplasms-6, Local germplasms-18, Sardar Sahar-636, Sardar Sahar-639, Sardar Sahar-649, Sardar Sahar-666 were observed as low susceptible (LS). Nine germplasms Local germplasms-9, Local germplasms-11, Local germplasms-19, Local germplasms-20, Sardar Sahar-642, Sardar Sahar-643, Sardar Sahar-648, Sardar Sahar-650, Sardar Sahar-713 were assessed as moderately susceptible (MS) disease reaction.

Keywords: Disease reaction, evaluation, foliar disease, germplasm, millet.

INTRODUCTION

Pearl millet [*Pennisetum glaucum* (L.) R. Br.] is the most widely grown type of millet. Pearl millet has been traditionally an important grain, forage and stover crop primarily in the arid and subtropical regions of many developing countries. Pearl millet is an important *kharif* crop particularly in rain-fed area. It is also known as *yellow foxtail*, *candle millet*, *pokograss*, *cat tail*, *spiked* or *bulrush millet* while in India and Rajasthan, it is known as *Bajra*. In world the pearl millet crop ranks sixth in importance followed by wheat, rice, maize, barley and sorghum. Pearl millet is a staple food and primary source of calories for millions of people in the Arid and Semi-arid Tropical Regions. It contains carbohydrate (60-78%), protein (11.5%), fat (5%), iron (2.80%), vitamins and mineral components along with anti-nutritional factors. It has high energy, less starch, high fiber (1.2 g/100 g, most of which is insoluble), 8-15 times greater alpha-amylase activity as compared to wheat, low glycemic index (55) and gluten free (Nambiar *et al.,* 2011). Pearl millet is grown most extensively as a forage crop, in addition pearl millet crop residues and green plants also provide sources of animal feed, building material and fuel for cooking, particularly in dry land areas. Most of pearl millet in India is grown in *kharif* season (June-September) but it is also cultivated during *Summer* (February-May) in Gujarat, Rajasthan and Uttar Pradesh and during *rabi* season (November-February) at a small scale in Maharashtra and Gujarat. During *kharif* season in pearl millet is largely grown as rainfed crop in Rajasthan. *Summer* season pearl millet is cultivated as an irrigated crop under high levels of agronomic management.

Pearl millet accounts for only 3.5 per cent of land under cereal cultivation globally and account one per cent of total cereal production (Reifschneider and Hussain, 2004). India and Africa together account 93.2 per cent of the total pearl millet production of the world. It occupies an area of 6.93 million ha with an average production of 8.61 million tonnes and productivity of 1243 kg ha^{-1} in India. Major pearl millet growing states in India are Rajasthan, Maharashtra, Uttar Pradesh, Gujarat and Haryana contributing 90% of total national production (Anonymous, 2020). Rajasthan ranks first in area and production of pearl millet in India. In

Rajasthan, the total area under cultivation of pearl millet was 4.18 million ha with the annual production of 3.81 million tonnes with the productivity of 911 kg ha^{-1}. Rajasthan contributing in pearl millet 60.32 and 44.22 per cent share in area and production in India, respectively. It is grown in Alwar, Jaipur, Jodhpur, Nagaur, Sikar, Dausa, Barmer, Bharatpur, Churu and Bikaner districts of Rajasthan (Anonymous, 2018-19). In Bikaner, the total area under cultivation of pearl millet was 1.25 Lakh ha. with the annual production of 0.43 Lakh tonnes with the productivity of 35 kg ha^{-1} (Anonymous, 2018-19).

Pearl millet suffers from many diseases caused by fungi, bacteria, viruses, nematodes and abiotic stresses. Among the fungal diseases, leaf spot of pearl millet is commonly occurred throughout the Asia. *Drechslera* sp. causes epidemic and catastrophic diseases in several kinds of crops and are still recognized as important plant pathogen (Yamaguchi and Mutsunobu, 2010).Leaf spot of pearl millet caused by *Drechslera setariae* (Teleomorph stage- *Cochliobolus setariae*) is a common foliar disease. (Wells and Winstead, 1965; Wells and Burton, 1967).Infection of *Drechslera setariae* at seedling stage results in death of plants and reduces crop stand in the field (Shetty *et al.,* 1982). Infected plants produce discolored grains and seed of poor quality (Kameswara *et al.,* 2002). Various foliar symptoms vary as brown flecks, fine linear streaks, small oval spots; large irregular oval, oblong, or almost rectangular spots measuring 1-10 long 0.5-3 mm wide. Large fusiform lesions are sometimes produced. Lesions may expand and coalesce. Lesions may be solid dark brown but usually become tan or grayish brown with distinct dark brown border on pearl millet (Luttrell, 1954).

MATERIAL AND METHODS

For this experiment, forty germplasms of pearl millet *viz.,* Local germplasm- 1, Local germplasm- 2, Local germplasm- 3, Local germplasm- 4, Local germplasm- 5, Local germplasm- 6, Local germplasm- 7, Local germplasm- 8, Local germplasm- 9, Local germplasm- 11, Local germplasm- 15. Local germplasm-16, Local germplasm- 18, Local germplasm- 19, Local germplasm- 20, Sardar Sahar- 636, Sardar Sahar- 639, Sardar Sahar- 640, Sardar Sahar- 642, Sardar Sahar- 643, Sardar Sahar- 645, Sardar Sahar- 646, Sardar Sahar- 647, Sardar Sahar- 648, Sardar Sahar- 649, Sardar Sahar- 650, Sardar Sahar- 651, Sardar Sahar- 654, Sardar Sahar- 656, Sardar Sahar- 658, Sardar Sahar- 660, Sardar Sahar- 662, Sardar Sahar- 664, Sardar Sahar- 666, Sardar Sahar- 674, Sardar Sahar- 677, Sardar Sahar- 680, Sardar Sahar- 685, Sardar Sahar- 713 and Sardar Sahar- 714 were collected from Agricultural Research Station, SKRAU, Bikaner and were grown in *kharif* 2019 and *Kharif*2020 at the Experimental Farm, College of Agriculture, SKRAU, Bikaner.

The test entries were planted in single row of 5m length with row to row spacing 45 cm and plant to plant spacing 15 cm was maintained with the using of RHB-177 as a susceptible check after every five entries, with two replications in a randomized block design. Conidial suspension was prepared and artificial inoculations were made and sprayed at the time of full leaves stage. The recommended packages of practices were followed to raise the normal crop.

The per cent disease intensity (PDI) was computed using the following formula:

$$PDI = \frac{\text{Sum of all numerical ratings}}{\text{Total number of plant observed} \times \text{Maximum rating scale}} \times 100$$

The observations on per cent disease intensity were recorded from the five randomly selected diseased plants at 60-75 days after showing (DAS) in each line on 0-9 scale basis (Mac Neal *et al.,* 1971). The rating scale was given below (Table 1) used for Drechslera leaf spot disease of pearl millet.

Table 1: Disease rating scale for *Drechslera* leaf spot disease (*Drechslera setariae*) of pearl millet.

Disease rating scale/grade	Per cent leaf area affected	Disease reaction
0	0%	Immune (I)
1	1-10%	Highly Resistant (HR)
2	10.01-20.00%	Resistant (R)
3	20.01-30.00%	Moderately Resistant (MR)
4	30.01-40.00%	Low Resistant (LR)
5	40.01-50.00%	Mesothetic (M)
6	50.01-60.00%	Low Susceptible (LS)
7	60.01-70.00%	Moderately Susceptible(MS)
8	70.01-80.00%	Susceptible (S)
9	80.01-100.00 %	Highly Susceptible (HS)

RESULTS AND DISCUSSION

Total fourty pearl millet germplasms were evaluated under artificial inoculation conditions during *kharif* 2019 and *kharif* 2020 at Experimental Farm, College of Agriculture, SKRAU, Bikaner. Observations were recorded in per cent disease intensity at 50-90 days. All the pearl millet germplasms were categorized according to disease reaction *viz.,* immune (I), highly resistant (HR), resistant (R), moderately resistant (MR), low resistant (LR), mesothetic (M), low susceptible (LS), moderately susceptible (MS), susceptible (S) and highly susceptible (HS) by using 0-9 disease rating scale of (Mac Neal *et al.,* 1971) respectively. The germplasms were categorized from immune to resistant on the basis of disease symptoms appear on plants. The results

(Table 2) revealed that symptoms of Drechslera leaf spot of pearl millet were appeared on all germplasms in *kharif* 2019 and *kharif* 2020. The results revealed that the none of germplasms were observed in immune (I), highly resistant (HR) and resistant (R) in categories against Drechslera leaf spot in pearl millet in *Kharif* 2019, *Kharif* 2020 and Pooled basis.

During *Kharif* 2019 (Table 3), seven germplasms Local germplasm-1 (24.07%), Local germplasm-2 (26.65%), Local germplasm-4 (20.37%), Sardar Sahar-646 (25.55%), Sardar Sahar-656 (24.44%), Sardar Sahar-658 (27.78%) and Sardar Sahar-685 (29.26%) were observed as moderately resistant (MR). Six germplasms Local germplam-3 (32.22%), Local germplasm-15 (36.92%), Sardar Sahar-651 (35.56%), Sardar Sahar-662 (36.70%), Sardar Sahar-664 (35.58%) and Sardar Sahar-677 (37.04%) were recorded as low resistant (LR). Ten germplasms Local germplam-5 (44.82%), Local germplam- 7 (45.18%), Local germplam-8 (49.63%), Local germplam-16 (47.41%), Sardar Sahar-645 (48.51%), Sardar Sahar-647 (44.44%), Sardar Sahar-654 (40.74%), Sardar Sahar-660 (45.56%), Sardar Sahar-674 (41.11%), Sardar Sahar-714 (45.19%) were assessed as mesothetic (M). Seven germplasms Local germplam-6 (57.78%), Local germplam-18 (57.04%), Sardar Sahar-639 (57.41%), Sardar Sahar-640 (51.11%), Sardar Sahar-649 (53.70%), Sardar Sahar-666 (59.63%), Sardar Sahar-680 (50.74%) were observed as low susceptible (LS). Ten germplasms Local germplam-9 (67.78%), Local germplam-11 (61.85%), Local germplam-19 (67.52%), Local germplam-20 (65.56%), Sardar Sahar-636 (60.37%), Sardar Sahar-642 (69.63%), Sardar Sahar-643 (66.30%), Sardar Sahar-648 (63.33%), Sardar Sahar-650 (65.19%), Sardar Sahar-713 (62.22%) were recorded as moderately susceptible (MS).

During *Kharif* 2020 (Table 4), seven germplasms Local germplasm-1 (25.95%), Local germplasm-2 (28.50%), Local germplasm-4 (22.22%), Sardar Sahar-646 (26.67%), Sardar Sahar-656 (24.44%), Sardar Sahar-658 (28.52%) and Sardar Sahar-685 (28.52%) were observed as moderately resistant (MR). Six germplasms Local germplam-3 (31.85%), Local germplasm-15 (35.81%), Sardar Sahar-651 (34.44%), Sardar Sahar-662 (35.58%), Sardar Sahar-664 (36.70%) and Sardar Sahar-677 (40.00%) were recorded as low resistant (LR). Twelve germplasms Local germplam-5 (45.19%), Local germplam- 7 (46.67%), Local germplam-8 (47.41%), Local germplam-16 (48.89%), Sardar Sahar-640 (48.52%), Sardar Sahar-645 (44.45%), Sardar Sahar-647 (49.26%), Sardar Sahar-654 (42.22%), Sardar Sahar-660 (48.89%), Sardar Sahar-674 (43.33%), Sardar Sahar-680 (48.52%), Sardar Sahar-714 (49.63%) were assessed as mesothetic (M). Six germplasms Local germplam-6 (60.00%), Local germplam-18 (52.22%), Sardar Sahar-636 (58.12%), Sardar Sahar-639 (56.30%), Sardar Sahar-649 (55.19%), Sardar Sahar-666 (58.89%), were observed as low susceptible (LS). Nine germplasms Local germplam-9 (69.63%), Local germplam-11 (64.07%), Local germplam-19 (66.04%), Local germplam-20 (68.15%), Sardar Sahar-642 (68.15%), Sardar Sahar-643 (61.48%), Sardar Sahar-648 (68.52%), Sardar Sahar-650 (67.04%), Sardar Sahar-713 (64.82%) were recorded as moderately susceptible (MS).

During both the seasons *Kharif* 2019 and *Kharif* 2020 data (Table 5) revealed that, seven germplasms Local germplasm-1 (25.01%), Local germplasm-2 (27.57%), Local germplasm-4 (21.30%), Sardar Sahar-646 (26.11%), Sardar Sahar-656 (24.44%), Sardar Sahar-658 (28.15%) and Sardar Sahar-685 (28.89%) were observed as moderately resistant (MR). Six germplasms Local germplasm-3 (32.04%), Local germplasm-15 (36.36%), Sardar Sahar-651 (35.00%), Sardar Sahar-662 (36.14%), Sardar Sahar-664 (36.14%), Sardar Sahar-677 (38.52%) were assessed as low resistant (LR). Twelve germplasms Local germplasm-5 (45.00%), Local germplasm-7 (45.93%), Local germplasm-8 (48.52%), Local germplasm-16 (48.15%), Sardar Sahar-640 (49.81%), Sardar Sahar-645 (46.30%), Sardar Sahar-647 (46.85%), Sardar Sahar-654 (41.48%), Sardar Sahar-660 (47.22%), Sardar Sahar-674 (42.22%), Sardar Sahar-680 (49.63%), Sardar Sahar-714 (47.41%) were recorded as mesothetic (M). Six germplasms Local germplasms-6 (58.89%), Local germplasms-18 (54.63%), Sardar Sahar-636 (59.25%), Sardar Sahar-639 (56.85%), Sardar Sahar-649 (54.45%), Sardar Sahar-666 (59.26%) were observed as low susceptible (LS). Nine germplasms Local germplasms-9 (68.71%), Local germplasms-11 (62.96%), Local germplasms-19 (66.78%), Local germplasms-20 (66.85%), Sardar Sahar-642 (68.89%), Sardar Sahar-643 (63.89%), Sardar Sahar-648 (65.93%), Sardar Sahar-650 (66.11%), Sardar Sahar-713 (63.52%) were assessed as moderately susceptible (MS).

According to disease rating scale none of germplasms were showed neither susceptible (S) nor highly susceptible (HS) in disease reaction against Drechslera leaf spot disease of pearl millet in *Kharif* 2019, *Kharif* 2020 and Pooled basis.

Similar germplasms/varietal screening has been also reported by earlier workers (Rathee *et al.,* 2000; Dhanju and Sain, 2005; Raj *et al.,* 2010; Kaur *et al.,* 2010). Kumar *et al.,* (2015) studied that 65 finger millet genotype and fifteen foxtail millet genotype in field against brown spot disease causing pathogen *D. nodulosa* and *D. setariae*, respectively. Out of the 65 genotype of finger millet 30 were remain immune, 24 were highly resistant, six were resistant and five showed moderately resistant reaction. While for fifteen foxtail millet genotype evaluation against the *D. setariae*, seven of them were remain highly resistant, seven were resistant and one showed moderately resistant reaction. Nasnwa *et al.* (2017) screened out the forty pearl millet genotypes in field against leaf spot disease incited by *D. setariae.* Among forty genotypes of pearl millet one genotype was found resistant, five genotypes were found moderately resistant, fifteen genotypes low resistant, five genotypes mesothetic, seven genotypes low susceptible, five genotypes moderately susceptible, two genotypes susceptible, and none of genotypes were found under highly susceptible, respectively.

Table 2: Screening of pearl millet germplasms against Drechslera leaf spot disease in artificial inoculation conditions.

Sr. No.	Germplasms	*Kharif* 2019		*Kharif* 2020		Pooled	
		Disease Intensity (%)	Disease Reaction	Disease Intensity (%)	Disease Reaction	Disease Intensity (%)	Disease Reaction
1.	Local germplasm-1	24.07 (29.23)	MR	25.95 (30.57)	MR	25.01 (29.92)	MR
2.	Local germplasm-2	26.65 (31.00)	MR	28.50 (32.22)	MR	27.57 (31.62)	MR
3.	Local germplasm-3	32.22 (34.54)	LR	31.85 (34.32)	LR	32.04 (34.43)	LR
4.	Local germplasm-4	20.37 (26.77)	MR	22.22 (27.99)	MR	21.30 (27.39)	MR
5.	Local germplasm-5	44.82 (41.98)	M	45.19 (42.21)	M	45.00 (42.10)	M
6.	Local germplasm-6	57.78 (49.49)	LS	60.00 (50.77)	LS	58.89 (50.13)	LS
7.	Local germplasm-7	45.18 (42.19)	M	46.67 (43.06)	M	45.93 (42.10)	M
8.	Local germplasm-8	49.63 (44.77)	M	47.41 (43.49)	M	48.52 (44.13)	M
9.	Local germplasm-9	67.78 (55.46)	MS	69.63 (56.57)	MS	68.71 (56.01)	MS
10.	Local germplasm-11	61.85 (51.90)	MS	64.07 (53.20)	MS	62.96 (52.55)	MS
11.	Local germplasm-15	36.92 (37.36)	LR	35.81 (36.70)	LR	36.36 (37.03)	LR
12.	Local germplasm-16	47.41 (43.48)	M	48.89 (44.34)	M	48.15 (43.92)	M
13.	Local germplasm-18	57.04 (49.04)	LS	52.22 (46.26)	LS	54.63 (47.64)	LS
14.	Local germplasm-19	67.52 (55.32)	MS	66.04 (54.40)	MS	66.78 (54.86)	MS
15.	Local germplasm-20	65.56 (54.08)	MS	68.15 (55.69)	MS	66.85 (54.88)	MS
16.	Sardar Sahar- 636	60.37 (51.04)	MS	58.12 (49.68)	LS	59.25 (50.35)	LS
17.	Sardar Sahar- 639	57.41 (49.28)	LS	56.30 (48.62)	LS	56.85 (48.95)	LS
18.	Sardar Sahar- 640	51.11 (45.63)	LS	48.52 (44.13)	M	49.81 (44.88)	M
19.	Sardar Sahar- 642	69.63 (56.58)	MS	68.15 (55.66)	MS	68.89 (56.11)	MS
20.	Sardar Sahar- 643	66.30 (54.54)	MS	61.48 (51.63)	MS	63.89 (53.07)	MS
21.	Sardar Sahar- 645	48.15 (43.91)	M	44.45 (41.77)	M	46.30 (42.84)	M
22.	Sardar Sahar- 646	25.55 (30.28)	MR	26.67 (31.03)	MR	26.11 (30.66)	MR
23.	Sardar Sahar- 647	44.44 (41.78)	M	49.26 (44.55)	M	46.85 (43.17)	M
24.	Sardar Sahar- 648	63.33 (52.72)	MS	68.52 (55.99)	MS	65.93 (54.31)	MS
25.	Sardar Sahar- 649	53.70 (47.12)	LS	55.19 (47.97)	LS	54.45 (47.54)	LS
26.	Sardar Sahar- 650	65.19 (53.86)	MS	67.04 (55.03)	MS	66.11 (54.44)	MS
27.	Sardar Sahar- 651	35.56 (36.53)	LR	34.44 (35.85)	LR	35.00 (36.19)	LR
28.	Sardar Sahar- 654	40.74 (39.60)	M	42.22 (40.49)	M	41.48 (40.05)	M
29.	Sardar Sahar- 656	24.44 (29.50)	MR	24.44 (29.50)	MR	24.44 (29.50)	MR
30.	Sardar Sahar- 658	27.78 (31.74)	MR	28.52 (32.22)	MR	28.15 (31.97)	MR
31.	Sardar Sahar- 660	45.56 (42.41)	M	48.89 (44.34)	M	47.22 (43.38)	M
32.	Sardar Sahar- 662	36.70 (37.22)	LR	35.58 (36.56)	LR	36.14 (36.89)	LR
33.	Sardar Sahar- 664	35.58 (36.56)	LR	36.70 (37.22)	LR	36.14 (36.89)	LR
34.	Sardar Sahar- 666	59.63 (50.54)	LS	58.89 (50.10)	LS	59.26 (50.32)	LS
35.	Sardar Sahar- 674	41.11 (39.85)	M	43.33 (41.14)	M	42.22 (40.50)	M
36.	Sardar Sahar- 677	37.04 (37.44)	LR	40.00 (39.20)	LR	38.52 (38.33)	LR
37.	Sardar Sahar- 680	50.74 (45.41)	LS	48.52 (44.13)	M	49.63 (44.77)	M
38.	Sardar Sahar- 685	29.26 (32.62)	MR	28.52 (32.18)	MR	28.89 (32.40)	MR
39.	Sardar Sahar- 713	62.22 (52.07)	MS	64.82 (53.62)	MS	63.52 (52.84)	MS
40.	Sardar Sahar- 714	45.19 (42.21)	M	49.63 (44.77)	M	47.41 (43.50)	M
	S.Em±	**1.614**		**1.512**		**1.480**	
	CD (P=0.05)	**4.872**		**4.637**		**4.226**	
	C.V. (%)	**8.750**		**8.032**		**7.790**	

Table 3: Categorization of pearl millet germplasms according to disease reaction against Drechslera leaf spot disease (*Kharif* 2019).

Disease rating scale/grade	Per cent leaf area affected	Disease reaction	Germplasms
0	0%	Immune (I)	None
1	1-10%	Highly resistant (HR)	None
2	10.01-20.00%	Resistant (R)	None
3	20.01-30.00%	Moderately resistant (MR)	Local germplasm- 1, 2, 4, Sardar Sahar- 646, 656, 658, 685 **(7)**
4	30.01-40.00%	Low resistant (LR)	Local germplasm- 3, 15, Sardar Sahar- 651, 662, 664, 677 **(6)**
5	40.01-50.00%	Mesothetic (M)	Local germplasm- 5, 7, 8, 16, Sardar Sahar- 645, 647, 654, 660, 674, 714 **(10)**
6	50.01-60.00%	Low susceptible (LS)	Local germplasm- 6, 18, Sardar Sahar- 639, 640, 649, 666, 680 **(7)**
7	60.01-70.00%	Moderately susceptible (MS)	Local germplasm- 9, 11, 19, 20, Sardar Sahar- 636, 642, 643, 648, 650, 713 **(10)**
8	70.01-80.00%	Susceptible (S)	None
9	80.01-100.00 %	Highly susceptible (HS)	None

Table 4: Categorization of pearl millet germplasms according to disease reaction against Drechslera leaf spot disease (*Kharif* 2020).

Disease rating scale/grade	Per cent leaf area affected	Disease reaction	Germplasms
0	0%	Immune (I)	None
1	1-10%	Highly resistant (HR)	None
2	10.01-20.00%	Resistant (R)	None
3	20.01-30.00%	Moderately resistant (MR)	Local germplasm- 1, 2, 4, Sardar Sahar- 646, 656, 658, 685 **(7)**
4	30.01-40.00%	Low resistant (LR)	Local germplasm- 3, 15, Sardar Sahar- 651, 662, 664, 677 **(6)**
5	40.01-50.00%	Mesothetic (M)	Local germplasm- 5, 7, 8, 16, Sardar Sahar- 640, 645, 647, 654, 660, 674, 680, 714 **(12)**
6	50.01-60.00%	Low susceptible (LS)	Local germplasm- 6, 18, Sardar Sahar- 636, 639, 649, 666 **(6)**
7	60.01-70.00%	Moderately susceptible (MS)	Local germplasm- 9, 11, 19, 20, Sardar Sahar- 642, 643, 648, 650, 713 **(9)**
8	70.01-80.00%	Susceptible (S)	None
9	80.01-100.00 %	Highly susceptible (HS)	None

Table 5: Categorization of pearl millet germplasms according to disease reaction against Drechslera leaf spot disease (Pooled basis).

Disease rating scale/grade	Per cent leaf area affected	Disease reaction	Germplasms
0	0%	Immune (I)	None
1	1-10%	Highly resistant (HR)	None
2	10.01-20.00%	Resistant (R)	None
3	20.01-30.00%	Moderately resistant (MR)	Local germplasm- 1, 2, 4, Sardar Sahar- 646, 656, 658,685 **(7)**
4	30.01-40.00%	Low resistant (LR)	Local germplasm- 3, 15, Sardar Sahar- 651, 662, 664, 677 **(6)**
5	40.01-50.00%	Mesothetic (M)	Local germplasm- 5, 7, 8, 16, Sardar Sahar- 640, 645, 647, 654, 660, 674, 680, 714 **(12)**
6	50.01-60.00%	Low susceptible (LS)	Local germplasm- 6, 18, Sardar Sahar- 636, 639, 649, 666 **(6)**
7	60.01-70.00%	Moderately susceptible (MS)	Local germplasm- 9, 11, 19, 20, Sardar Sahar- 642, 643, 648, 650, 713 **(9)**
8	70.01-80.00%	Susceptible (S)	None
9	80.01-100.00 %	Highly susceptible (HS)	None

SUMMERY AND CONCLUSION

Forty germplasms were evaluated against *D. setariae* under artificial inoculation conditions during *Kharif* 2019 and *kharif* 2020. None of the germplasms were found immune (I), highly resistant (HR), resistant (R) and none germplasms were also reported as susceptible (S) and highly susceptible (HS) against *D. setariae* on pearl millet germplasms. Seven germplasms Local germplasm-1, Local germplasm-2, Local germplasm-4, Sardar Sahar-646, Sardar Sahar-656, Sardar Sahar-658 and Sardar Sahar-685 were observed as moderately resistant (MR). Six germplasms Local germplasm-3, Local germplasm-15, Sardar Sahar-651, Sardar Sahar-662, Sardar Sahar-664, Sardar Sahar-677 were assessed as low resistant (LR). Twelve germplasms Local germplasm-5, Local germplasm-7, Local germplasm-8, Local germplasm-16, Sardar Sahar-640, Sardar Sahar-645, Sardar Sahar-647, Sardar Sahar-654, Sardar Sahar-660, Sardar Sahar-674, Sardar Sahar-680, Sardar Sahar-714 were recorded as mesothetic (M). Six germplasms Local germplasms-6, Local germplasms-18, Sardar Sahar-636, Sardar Sahar-639, Sardar Sahar-649, Sardar

Sahar-666 were observed as low susceptible (LS). Nine germplasms Local germplasms-9, Local germplasms-11, Local germplasms-19, Local germplasms-20, Sardar Sahar-642, Sardar Sahar-643, Sardar Sahar-648, Sardar Sahar-650, Sardar Sahar-713 were assessed as moderately susceptible (MS) disease reaction.

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Conflict of Interest. None.

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