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Prevalence of Sheath Rot of Rice caused by *Sarocladium oryzae* in *Konkan* Region and its Pathogenic variability

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ABSTRACT: Rice sheath rot caused by *Sarocladium oryzae* is an emerging fungal disease that is spreading over rice growing areas in *Konkan* region of Maharashtra. Roving survey was carried out on farmer's field in different districts of the *Konkan* region during the *Kharif*, 2021 and *Kharif*, 2022 to assess the disease incidence of sheath rot of rice. The disease was widespread in all the surveyed locations, with varying levels of incidence during both the years. In all, number of fields were surveyed from five districts where different rice varieties were grown by the farmers. Among villages surveyed, highest disease incidence (53.33 % and 51.51 %) was recorded in Pavas village from Ratnagiri district and the lowest disease incidence (6.25 % and 5.71 %) was recorded in Lohare village from Raigad district during *Kharif*, 2021 and *Kharif*, 2022, respectively. Diseased samples were collected during the survey from various locations and twenty isolates of *Sarocladium oryzae* causing sheath rot were isolated. All twenty isolates of *S. oryzae* exhibited a wide range of pathogenic variability. Among the twenty isolates of *S. oryzae*, isolate So2 exhibited minimum incubation period (5 days), maximum lesion length (28.55 mm) and highest per cent disease severity (39.81 %) followed by So12 (6 days, 27.10 mm and 36.10 %) while maximum incubation period was observed in isolate So7 (13 days) and So8 (13 days), least lesion length and per cent disease severity was observed in isolate So7 (20.65 mm and 12.03 %), respectively.

Keywords: *Sarocladium oryzae*, Rice, Disease Incidence.

INTRODUCTION

Rice (*Oryza sativa* L.) is a self-pollinated crop belonging to the family Poaceae and used as a staple food by more than 60 per cent of world population. It is grown under different agro ecological conditions *viz*., deep water, water logged, hills, high humidity, high temperatures, saline and alkaline soils and flood prone areas in India. Some biotic and abiotic stresses are important constraints in the cultivation of rice under different agro climatic conditions and growing ecologies. Many fungal, bacterial, viral diseases and physiological disorders occurring at different growth stages of the rice crop cause large annual losses. Among the diseases, sheath rot caused by *Sarocladium oryzae* [(Sawada) (W. Games and D. Hawksworth)] is emerging as a serious menace in rice cultivation in *Konkan* region and affects the sheaths enclosing young panicles leading to severe yield losses varying from 9.6 to 85 per cent (Phookan and Hazarika 1992). Sheath rot pathogen infects upper most flag leaf sheath that enclose the emerging young panicles during the boot leaf stage. The lesions are oblong or irregular oval spot and usually expressed as reddish-brown discoloration of flag leaf sheath. Early infection affects the panicles, so that it partially emerges. The unemerged portion of the panicle rots, turning florets red brown to dark brown. Grains from damaged panicles are chaffy and the disease is appropriately known as "empty earhead" and is familiar as "rice abortion" (Mansa *et al.*, 2022). Keeping this in view, the present investigation was undertaken to prevalence of sheath rot of rice caused by *Sarocladium oryzae* in *Konkan* region and its pathogenic variability.

MATERIAL AND METHODS

A roving survey was conducted on randomly selected rice fields at different farmer's fields in Ratnagiri, Raigad, Palghar, Thane and Sindhudurg districts of *Konkan* region of Maharashtra, for recording sheath rot disease incidence, during *Kharif*, 2021 and *Kharif*, 2022. From each tehsil, two villages, from each village five plots were selected to record the data on incidence of sheath rot.

Five plots measuring 1 m × 1 m were selected randomly from each field for recording observations.

Total number of productive tillers were counted in each plot and then counted the number of sheath rot infected panicles and finally computed the sheath rot incidence percentage. Ten plants were randomly selected per one sq. m area and above procedure followed to obtain sheath rot disease incidence percentage.

Per cent disease incidence was calculated by the following formula,

$$\text{Disease Incidence (\%)} = \frac{\text{Number of infected tillers}}{\text{Total number of tillers observed}} \times 100$$

Collection, isolation and purification of isolates. Isolation of pathogen was carried out from fresh infected samples collected from different parts of *Konkan* region. The standard tissue isolation technique was followed for isolation. Inoculated plates were incubated at room temperature (27 ± 2°C) for four days and monitored for growth of the causal organism. The cultures of the pathogen were further purified by hyphal tip technique in slants. Slants with pure fungal growth were stored in refrigerator at 4°C for future use. Applying similar procedure, a total twenty isolates of *Sarocladium oryzae* were isolated, purified, multiplied and stored in refrigerator at 4°C for future use. Twenty isolates of *S. oryzae* were designated as So1 to So20.

Mass multiplication of *Sarocladium oryzae*. Mass multiplication of *S. oryzae* culture was done on rice grains (Singh *et al*., 2005). Overnight presoaked 30 g rice grains were filled into 250 ml Erlenmayer flasks. The autoclaved and cooled rice grains in each flask were inoculated with single disc of 5 mm size of the isolated pure culture of *S. oryzae* and incubated for 15 days at room temperature. For all isolates same procedure was followed for mass multiplications.

Pathogenic variability of *S. oryzae* isolates. Pathogenic variability for all twenty isolates of *S. oryzae* was attempted on susceptible rice cultivar Karjat 7 by employing single grain insertion method (Hazarika and Phookan 1998) in pots under screen house conditions. Ten seeds of susceptible rice cultivar Karjat 7 were sown in pots and grown up to booting stage. Paddy plants in pots were artificially inoculated with *S. oryzae* by placing single grain of rice grain culture in between the flag leaf sheath and unmerged panicle. Five plants were randomly selected and labelled. Rice tiller without any inoculation was kept as a check. Inoculated pots were moistened with water and covered with polythene covering for maintaining high relative humidity for disease appearance and incubated for 15 days. The five tagged hills of rice plant were monitored for expression of typical sheath rot symptoms after incubation. To assess pathogenic variability among the twenty isolates of *S. oryzae*, observations on incubation period, lesion length and per cent disease severity were recorded by using Standard Evaluation System (SES) for rice (IRRI, 2013). Per cent disease severity was calculated by the following formula,

$$\text{Per cent Disease Severity} = \frac{\text{Sum of the individual disease ratings}}{\text{Total number of tillers observed} \times \text{Maximum disease grade}} \times 100$$

Scale grade	Description	Disease reaction
0	No lesion/ spot on flag leaf sheath	Highly resistant (HR)
1	Spots visible on the tillers upon very careful examination (less than 1% flag leaf sheath area covered)	Resistant (R)
3	Spots visible on the tillers upon careful examination (1-5% flag leaf sheath area covered)	Moderately resistant (MR)
5	Spots easily visible on the tillers (6-25% flag leaf sheath area covered)	Moderately susceptible (MS)
7	Spots present on almost whole the tillers parts (26-50% flag leaf sheath area covered)	Susceptible (S)
9	Spots very common on whole the tillers parts (51-100% flag leaf sheath area covered) death of plants common, reduced severe yield loss	Highly susceptible (HS)

RESULTS AND DISCUSSION

Survey for the incidence of sheath rot of rice in Konkan region. A roving survey on farmer's field was conducted in different districts of Konkan region *viz*., Ratnagiri, Raigad, Palghar, Thane and Sindhudurg during the *Kharif*, 2021 and *Kharif*, 2022 to assess the disease incidence of sheath rot of rice.

Village wise sheath rot incidence of rice in Konkan region. Result (Table1, PLATE I and PLATE II) revealed that in Ratnagiri district, the incidence of sheath rot ranged from 9.09 to 53.33 per cent during *Kharif*, 2021 and 6.25 to 51.51 per cent during *Kharif*, 2022. Among the villages surveyed from Ratnagiri district, Pavas village from Ratnagiri tahsil recorded maximum sheath rot incidence (53.33 % and 51.51 %) during *Kharif*, 2021 and *Kharif*, 2022 where as Dhopeshwar village from Rajapur tahsil recorded lowest sheath rot incidence (9.09 % and 6.25 %) during *Kharif*, 2021 and *Kharif*, 2022.

In Raigad district, the incidence of sheath rot ranged from 6.25 to 48.27 per cent during *Kharif*, 2021 and 5.71 to 48.15 per cent during *Kharif*, 2022. Among the villages surveyed from Raigad district, Nivi village from Mangaon tahsil recorded maximum sheath rot incidence (48.27 % and 48.15 %) during *Kharif*, 2021 and *Kharif*, 2022 where as Lohare village from Poladpur tahsil recorded lowest sheath rot incidence (6.25 % and 5.71 %) during *Kharif*, 2021 and *Kharif*, 2022.

In Sindhudurg district, the incidence of sheath rot of rice ranged from 8.33 to 31.42 per cent during *Kharif*, 2021 and 7.40 to 30.55 per cent during *Kharif*, 2022. Among the villages surveyed from Sindhudurg district, Kolamb village from Malwan tahsil recorded maximum sheath rot incidence (31.42 % and 30.55 %) during

Kharif, 2021 and *Kharif*, 2022 where as Varvande village from Kankavali tahsil recorded lowest sheath rot incidence (8.33 %) during *Kharif*, 2021 and Devbag village from Malvan tahsil recorded lowest sheath rot incidence (7.40 %) during *Kharif*, 2022.

In Palghar district, the incidence of sheath rot ranged from 6.89 to 42.42 per cent during *Kharif*, 2021 and 6.06 to 41.66 per cent during *Kharif*, 2022. Among the villages surveyed from Palghar district, Valwandae village from Jawhar tahsil recorded maximum sheath rot incidence (42.42 % and 41.66 %) during *Kharif*, 2021 and *Kharif*, 2022 where as Tornae village from Vada tahsil recorded lowest sheath rot incidence (6.89 % and 6.06 %) during *Kharif*, 2021 and *Kharif*, 2022.

In Thane district, the incidence of sheath rot ranged from 9.52 to 33.33 per cent during *Kharif*, 2021 and 9.09 to 31.42 per cent during *Kharif*, 2022. Among the villages surveyed from Thane district, Shivale village from Murbad tahsil recorded maximum sheath rot incidence (33.33 % and 31.42%) during *Kharif*, 2021 and *Kharif*, 2022 where as Nadgaon village from Shahapur tahsil recorded lowest sheath rot incidence (9.52 % and 9.09 %) during *Kharif*, 2021 and *Kharif*, 2022.

Table 1: Village wise survey on sheath rot incidence of rice under Konkan region during *Kharif*, 2021 and *Kharif*, 2022.

District	Tahsil	Village	Disease Incidence (%)	
			***Kharif*, 2021**	***Kharif*, 2022**
Raigad	Poladpur	Lohare	6.25	5.71
		Revali	24.24	22.58
	Mhasala	Sakalap	15.62	13.33
		Sawar	44.11	43.75
	Shrivardhan	Arathi	9.52	8.82
		Bhoste	17.39	13.79
	Mahad	Nigade	14.70	11.42
		Pachad	10.34	8.16
	Panvel	Pali Kh.	14.28	13.63
		Kon	7.84	6.89
	Karjat	Kalamb	24.24	23.52
		Dahivali	9.61	8.82
	Khalapur	Rasayani	26.66	26.47
		Vinegaon	14.28	12.90
	Pen	Pen	18.18	15.62
		Revoli	9.09	6.12
	Alibag	Revdanda	12.50	11.53
		Bagmala	24.00	22.58
	Murud	Korlai	19.35	18.18
		Dande Turf	13.88	12.90
	Roha	Kolad	10.34	8.69
		Pale kh.	19.04	18.00
	Sudhagad	Unhere Bk.	11.42	10.34
		Kansal	9.09	7.17
	Mangaon	Nivi	48.27	48.15
		Repoli	8.33	7.69
	Tala	Rahatad	35.39	33.33
		TarneTarf	11.76	9.37
Thane	Murbad	Potgaon	20.68	19.38
		Shivale	33.33	31.42
	Shahapur	Atgaon	14.28	13.88
		Nadgaon	9.52	9.09
Palghar	Vada	Vaghote	18.75	15.38
		Tornae	6.89	6.06
	Palghar	Chahade	27.27	26.47
		Manor	21.87	19.23
	Jawhar	Valwandae	42.42	41.66
		Kasatwadi	12.50	10.34
	Vikramgad	Alonde	25.80	23.52
		Yashwantnagar	11.76	9.67
	Mokhada	Sakhari	23.52	23.33
		Poshera	13.69	10.52
Sindhudurg	Kankavali	Vagade	14.28	11.53
		Varvande	8.33	7.69
	Kudal	Pawashi	17.39	16.66
		Zarap	10.81	8.82
	Devgad	Kunkeshwar	13.33	11.53
		Dabhole	22.58	20.00

	Malvan	Kolamb	31.42	30.55
		Devbag	9.52	7.40
	Vengurla	Adeli	14.28	13.63
		Math	21.87	20.58
	Vaibhavvadi	Nadhavade	26.47	25.80
		Napane	28.57	27.27
	Sawantwadi	Malgaon	13.63	10.52
		Nirvade	19.44	18.18
Ratnagiri	Dapoli	Ladghar	48.48	46.87
		Wakawali	21.87	20.61
	Khed	Lote	37.50	34.37
		Sakhroli	26.66	25.80
	Chiplun	Savarda	17.64	15.38
		Nagave	46.15	43.75
	Sangameshwar	Tural	11.53	9.10
		Kolambe	26.66	24.24
	Ratnagiri	Kasarweli	16.66	14.60
		Pavas	53.33	51.51
	Lanja	Anjanari	12.12	11.53
		Waked	15.15	12.50
	Rajapur	Dhopeshwar	9.09	6.25
		Rajwadi	30.30	27.27
	Mandangad	Pale	11.42	9.09
		Dhutroli	9.67	7.69
	Guhaghar	Palshet	15.62	12.50
		Hedavi	13.33	9.37

PLATE I. Rice crop fields surveyed for sheath rot disease incidence during *Kharif*, 2021.

PLATE II. Rice crop fields surveyed for sheath rot disease incidence during *Kharif*, 2022.

District wise sheath rot incidence of rice in Konkan region. Results (Table 2) revealed that, among the different districts surveyed in Konkan region during *Kharif*, 2021 and *Kharif*, 2022, maximum average sheath rot incidence was recorded in Ratnagiri district (23.50 % and 21.18 %) followed by Palghar (20.44 % and 18.61 %), Thane (19.45 % and 18.44 %) and Sindhudurg districts (17.99 % and 16.43 %). The lowest average sheath rot incidence was recorded in Raigad district (16.79 % and 15.40 %), respectively.

Table 2: District wise sheath rot incidence of rice under Konkan region during *Kharif*, 2021 and *Kharif*, 2022.

Sr. No.	District	Disease Incidence (%)		Avg. Incidence (%)
		Kharif, 2021	*Kharif*, 2022	
1.	Ratnagiri	23.50	21.25	22.38
2.	Raigad	17.49	16.05	16.77
3.	Sindhudurg	17.99	16.43	17.21
4.	Palghar	20.44	18.61	19.52
5.	Thane	19.45	18.44	18.94

The results of sheath rot survey are similar to those reported earlier by several workers. Manasa *et al.* (2022) conducted a roving survey for to collect information on occurrence of sheath rot in major rice growing areas of Northern Telangana Zone, Southern Telangana Zone and Central Telangana Zone of Telangana state and found that, highest incidence of sheath rot (37.70 %) was recorded at Lingala village of Achampetmandal of Nagarkurnool and the lowest

incidence (3.00 %) was recorded in Pendlipakala village, Kondamallepallymandal of Nalgonda district.

Isolation of Pathogen. Isolation of pathogen was carried out from infected samples showing typical sheath rot symptoms collected from different parts of *Konkan* region during the survey. The fungus associated with the diseased plant samples was isolated following standard tissue isolation method under aseptic conditions on PDA. Fungal growths associated with the inoculated pieces on PDA were observed after 72 hrs. and purification of culture was made by hyphal tip technique in PDA slants. Same procedure was followed to obtain twenty isolates of *Sarocladium oryzae* isolates from different parts. The cultures of twenty isolates of *S. oryzae* were purified by using hyphal tip isolation technique on PDA. The pure cultures of twenty isolates were allotted designation as So indicating name of the pathogen. These isolates were further designated as So1 to So20 as depicted in table 3. Pure cultures of all isolates (So1 to So20) were maintained on PDA slants at 4^{o}C for further use as a mother culture (PLATE III).

Table 3: Designation of *Sarocladium oryzae* isolates from Konkan region.

Sr. No.	Isolate	District	Tahsil	Village	Variety
1.	So1	Raigad	Mahad	Pachad	Suvarna
2.	So2	Raigad	Mangaon	Nivi	Komal
3.	So3	Ratnagiri	Mandangad	Pale	Ratnagiri 8
4.	So4	Raigad	Roha	Kolad	Ratna
5.	So5	Palghar	Vada	Tornae	Daptari
6.	So6	Sindhudurg	Kudal	Zarap	Madhumati
7.	So7	Thane	Shahapur	Nandgaon	Suvarna
8.	So8	Raigad	Mangaon	Nivi	Sairam
9.	So9	Ratnagiri	Lanja	Waked	Sarathi
10.	So10	Ratnagiri	Guhaghar	Palshet	Jaya
11.	So11	Raigad	Tala	Rahatad	Sonam
12.	So12	Ratnagiri	Rajapur	Rajwadi	Jaya
13.	So13	Palghar	Palghar	Manor	YSR
14.	So14	Raigad	Shrivardhan	Bhoste	Kolam
15.	So15	Palghar	Mokhada	Sakhari	Wada Kolam
16.	So16	Palghar	Jawhar	Valwande	Komal
17.	So17	Thane	Murbad	Potgaon	Daptari
18.	So18	Sindhudurg	Devgad	Kunkeshwar	Purva
19.	So19	Sindhudurg	Vengurla	Math	Komal
20.	So20	Ratnagiri	Khed	Lote	Sairam

PLATE III. Pure culture of *Sarocladium oryzae* isolates.

Earlier many workers followed the same procedure to obtain isolates of *S. oryzae* from different locations. Manasa *et al*. (2022) conducted roving survey and isolated 38 fungal cultures of *S. oryzae*and two cultures of *Fusarium proliferatum* causing sheath rot disease in Telangana State. Venkatesh *et al*. (2022) collected sheath rot samples from different parts of India during *Kharif*, 2017-19 and isolated *S. oryzae* from thirty geographical locations on a potato dextrose agar (PDA).

Pathogenic variability of *Sarocladium oryzae* isolates. Pathogenic variabilityfor all twenty isolates of *S. oryzae* was tested on susceptible rice cultivar Karjat 7 by employing single grain insertion method in pots under glass house conditions. After 5-13 days of inoculation, control plants does not developed any symptoms and plants inoculated by single grain developed symptoms at the point of inoculation on the sheath in the form of small, water-soaked brown lesions (PLATE IV). Over time, these lesions grew in size and transformed into dark brown lesions with an oblong and irregular shape, featuring a grayish centre on the sheath. Whitish powdery growth inside the infected sheaths was observed. Grains infected by the fungus typically appeared dark reddish with brown discoloration in later stage. Re-isolation from inoculated plants with diseased lesions yielded culture of *S. oryzae*.

Incubation Period. Among the twenty isolates of *S. oryzae*, incubation period varied from 5 to 13 days. The isolate So2 exhibited the least incubation period (5 days) followed by So12 (6 days), So19 (6 days), So16 (6.5 days), So4 (7 days), So17 (7 days), So20 (7.5 days), So10 (8 days), So18 (8 days), So15 (8.5 days), So6 (9 days), So13 (10 days), So14 (10 days), So1 (11 days), So9 (11 days), So3 (11.5 days), So11 (11.5 days)

and So5 (12 days). The maximum incubation period (13 days) was observed in isolate So7 and So8 (Table 4).

Lesion length. Perusal of table 4 revealed that among the twenty isolates of *S. oryzae*, lesion length on 13 days ranged from 20.65 to 28.55 mm. The isolate So2 recorded maximum lesion length (28.55 mm) followed by So12 (27.10 mm), So16 (26.90 mm), So19 (26.35 mm), So17 (26.10 mm), So20 (25.90 mm), So4 (25.60 mm), So10 (25.25 mm), So15 (25.20 mm), So18 (24.95 mm), So6 (24.75 mm), So13 (24.55 mm), So14 (24.30 mm), So9 (24.00 mm), So11 (23.90 mm), So1 (23.80 mm), So3 (23.50 mm), So8 (23.15 mm) and So5 (22.55 mm). The least lesion length was observed in isolate So7 (20.65 mm) after 13 days.

Per cent disease severity. Results revealed (Table 4) that, among the twenty isolates of *S. oryzae*, disease severity varied from 12.03 to 39.81 per cent. Isolate So2 exhibited highest per cent disease severity (39.81 %) within five days of incubation period followed by So12 (36.10 %), So19 (35.64 %), So16 (33.94 %), So17 (31.94 %), So4 (30.55 %), So20 (29.87 %), So10 (28.69 %), So18 (28.23 %), So15 (27.77 %), So6 (25.46 %), So14 (23.60 %), So13 (22.68 %), So9 (21.29 %), So1 (20.83 %), So3 (19.44 %), So11 (18.05 %), So5 (15.73 %) and So8 (13.42 %). The least per cent disease severity was observed in isolate So7 (12.03 %).

Table 4: Pathogenic variability among the *Sarocladium oryzae* isolates from *Konkan* region.

Sr. No.	Isolate Number	Incubation Period (Days)*	Lesion Length (mm)*	Per cent Disease Severity*
1.	So1	11.0	23.80	20.83
2.	So2	5.0	28.55	39.81
3.	So3	11.5	23.50	19.44
4.	So4	7.0	25.60	30.55
5.	So5	12.0	22.55	15.73
6.	So6	9.0	24.75	25.46
7.	So7	13.0	20.65	12.03
8.	So8	13.0	23.15	13.42
9.	So9	11.0	24.00	21.29
10.	So10	8.0	25.25	28.69
11.	So11	11.5	23.90	18.05
12.	So12	6.0	27.10	36.10
13.	So13	10.0	24.55	22.68
14.	So14	10.0	24.30	23.60
15.	So15	8.5	25.20	27.77
16.	So16	6.5	26.90	33.94
17.	So17	7.0	26.10	31.94
18.	So18	8.0	24.95	28.23
19.	So19	6.0	26.35	35.64
20.	So20	7.5	25.90	29.87
	SE±	**0.34**	**0.37**	**0.71**
	CD at 1%	**1.00**	**1.08**	**2.11**

***: Mean of two replications**

PLATE IV. Pathogenic variability among the isolates of *Sarocladium oryzae* from Konkan region.

The outcomes from pathogenicity test of *S. oryzae* show consistency with the findings of several earlier reporters. Vengadeshkumar *et al*. (2019) carried out pathogenicity test of different isolates of *S. oryzae* on rice plants and reported that, the isolate SO17 was found as the most virulent which recorded maximum lesion size 39.40 mm length and 5.31 mm width followed by SO8 with lesion size of 38.63 (length) and 5.28 mm (width) and smaller lesion size (30.91 and 3.20 mm) was recorded in isolate SO11.

Morphological characters. The pure culture of *S. oryzae* initially produced a hyaline, superficial and

spreading colony with a slightly pale white colour on PDA. Over time, the colony developed into a white, purple, blue to orange with compact or cottony appearance. On the reverse side of the colonies, a yellow, whitish, brown to light blue colour was observed.

Microscopic observations revealed (PLATE V) that the fungus produced thin, hyaline, sparsely branched and septate mycelium measuring 0.90 to 2.10 µ in width. Conidiophores of the fungus were slightly thicker than the vegetative hyphae and branched, forming 3-4 branches in whorl-like arrangement and bears conidia singly on the tapering tips of phialides. Conidia were long, hyaline, smooth, single-celled and cylindrical in shape with round ends. The size of the conidia ranged from 3.46 to 7.70 µ in length and 0.95 to 1.87 µ in width.

On the basis of symptomatology, morphological, cultural character, microscopic observations, pathogenicity test, standard literature, standard books and authentic website (www.mycobank.org), the all isolates was identified as *S. oryzae*.

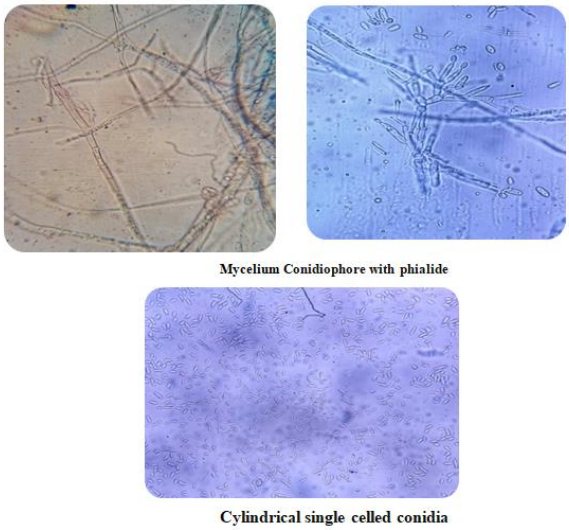

PLATE V. Microphotograps of *Sarocladium oryzae.*

The morphological and cultural characters of *S. oryzae* observed in the present study were in line with the observations made by earlier some workers. Shamsi and Chowdhury (2016) concluded that, *S. oryzae* produced whitish, sparsely branched and septate mycelium. Conidiophores arising from mycelia slightly thickened from hyphae, branched once or twice, each time with 3-4 branches in a whorl. The main axis 14 - 23 × 1.5 - 2.0 µm. The terminal branches are tapering towards the apex. Conidia hyaline, smooth, aseptate, cylindrical, 2 - 0 - 14 × 1.5 - 1.8 µm.

CONCLUSIONS

Conducting roving survey is very much important to know the extent of disease causing in a particular area. On the basis of this study, it is concluded that, sheath rot of rice which is considered as a minor disease is going to be one of the major disease of rice in *Konkan* region over the time. *S. oryzae* possesses wide range of variation with respect to morphological, cultural and pathogenic behaviour. Isolate So2 was found to be most virulent with minimum incubation period (5 days), maximum lesion length (28.55 mm) and highest per cent disease severity (39.81 %).

FUTURE SCOPE

During survey variety showed resistant reaction against sheath rot will beutilized for breeding programme, it will help to farmers to grow disease free variety, so that yield will be increased.

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Conflict of Interest. None.

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