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## Evaluation of rice varieties and land races against paddy leaf mite (*Oligonychus Oryzae*) In North Western Zone of Tamil Nadu

**P Thilagam and SM Jalaludin**

**Abstract**

Two field experiments were conducted at Regional Research Station, Paiyur during kharif 2014 and 2015 to evaluate the rice varieties and landraces against paddy leaf mite, *Oligonychus oryzae*. Out of 40 rice varieties / landraces tested, twenty one varieties reported with Zero population of mites during Kharif 2014. During Kharif 2015, the lowest to highest mean mite population ranged from 0.75 to 17.25 No.s / leaf. During the initial period at 30 DAT, the highest population of mites was noticed in Paiyur 1 (21.0 No.s/leaf) and reduced to 9.5 No.s/leaf at the end of the period with the onset of North east monsoon. The results on categorization of resistance revealed that, out of 40 varieties / landraces tested towards rice mite imparts resistant to 35 varieties / landraces and the remaining 5 varieties / landraces contributes for moderately resistant. No variety was found susceptible against *O.oryzae*.

**Keywords:** Rice varieties / landraces, Screening, Rice mite, *Oligonychus oryzae*

**Introduction**

Rice, *Oryza sativa* L., supplies food for nearly half of the world's population. The crop is extensively cultivated in South and South East Asian countries. Rice crop is the foundation of national stability and economic growth in many developing countries including India. Traditionally, insect pests, diseases and weeds are the triple evils responsible for low yields of rice in India. Of late, mites are also assuming major pest status. Among different species of mites associated with rice crop, the sheath or panicle mite and leaf mite or red spider mite are most important. The sheath mite, *Steneotarsonemus spinki* in association with the sheath rot fungus, *Acrocyldrium oryzae* causes grain discolouration, ill-filled and chaffy grains and often inflicts heavy losses in rice, in almost all Asian countries. Leaf mite, *Oligonychus oryzae* at times becomes serious under field conditions particularly during summer months. Among the arthropod pests, insects are considered as the major pest group threatening rice production. In recent years, mites have become a greater concern to the successful cultivation of rice in India, particularly South India.

Among the mites, the severe outbreak of the rice leaf mite, *Oligonychus oryzae* Hirst (Acari: Tetranychidae) had been reported and considerable yield loss was reported by Swamiappan (1986) [1]. The occurrence of *O.oryzae* on rice was first reported from South India by Cherian (1931) [2]. The occurrence of rice leaf mite appears to have increased greatly in India, particularly in Tamilnadu. In the absence of rain, prolonged dry climatic conditions provide a congenial atmosphere for the multiplication of mites. Occurrence, damage, bio-ecology, varietal screening and management aspects of this mite have been studied in India (Cherian, 1938; Misra and Israel, 1968; Rai *et al.*, 1977 and Karupuchamy *et al.*, 1987) [3, 5, 8, 4]. Mukherjee *et al.*, (1989) [6] studied the relative incidence of *O.oryzae* on nine varieties of paddy and Karupuchamy *et al.*, (1987) [4] also reported the susceptibility of IR lines against *O.oryzae*. Eventhough, the studies were conducted in different parts of India; no detailed study was conducted on different rice varieties and land races susceptible to this mite. Hence the objective of this study is to identify the resistant / tolerant genotypes/ landraces against leaf mite in paddy.

**Materials and Methods**

Field experiments were conducted at Regional Research Station, Tamil Nadu Agricultural University, Paiyur, India during kharif seasons of 2014 and 2015 to evaluate the different rice varieties / landraces against mite, *O. Oryzae*. The various rice genotypes and landraces (40) were selected for screening of rice leaf mite under field condition. The rice genotypes / landraces *viz.*, Jeevan samba, Malayalathan samba, MDU-5, Kavuni, whiteponni, PS3, ADT

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49, IR 50, Sornavari, ADT 38, Vellaikottai, MDU 4, PB1, Kettanur, ADT 43, PYR 1, ASD 16, Anna4, K429, Try3, Athira, Kudouvazhai, IR 20, Kottanel, Karungan, ADT 39, Varappukudainchan, Avasara samba, Savulu samba, Mapillai samba, Vellaikudaivazhai, chetty samba, manavai, Arupudham kuruvai, karuppunel, CO43, PS1, PS2, Bhavani and MDU 3 were selected for the screening purpose.

The relationship between the *O.oryzae* and the relative tolerance (varietal susceptibility) of the above varieties / landraces during Kharif 2014 (August 2014 to January 2015) and Kharif 2015 (June to December 2015). The above varieties / landraces were grown in 5m long rows with spacing of 22.5x22.5 cm and were replicated twice. Five rows were maintained under each genotype. No pesticides were during the crop growth other than proper nutrition. The mite population was recorded in 10 cm leaf length from five plants at random in each replication on 30 and 40 days after transplanting (DAT) during the first season and 30 to 80 DAT during the second season. The above selected rice genotypes

were sown in nursery beds on 11.08.14 and transplanted in main field on 25.08.14 and also transplanted in pots during the samba season. Data on the mite population and mite damage per cent were recorded in the main field at 30 and 40 DAT at 10 days interval. The data was subjected to statistical analysis using AGRES. In addition to this, leaf damage rating was also made. For the assessment of leaf damage all the leaves on the selected plants were graded based on the rating scale adopted by Archer (1987), where grade or rating 1=1-10%, 2=11-20%, 3=21-30%, 4=31-40%, 5=41-50%, 6=51-60%, 7=61-70%, 8=71-80%, 9=81-90% and 10=91-100% (leaf area damage). For evaluating the level of resistance, the second season data was taken in to account since the mite population was observed for a period of two months and the population of mites was also high in case of second season, since the nursery sowing was two months prior to the first season so as to ensure enough mite population for screening purpose. The level of resistance was categorized as given in Table 1

**Table 1:** Categorization of the level of resistance

Leaf damage (%)	Mean Leaf damage rating	Level of resistance
0-40	1-4	Resistant (R)
41-60	>4-6	Moderately Resistant (MR)
61-80	>6-8	Moderately Susceptible (MS)
>80	>8	Susceptible (S)

**Table 2:** Evaluation of rice varieties and landraces against paddy leaf mite, *O.oryzae*

S.No	Rice varieties	Mite population (No/ Leaf)									
		Kharif 2014			Kharif 2015						
		30 DAT	40 DAT	Mean	30 DAT	40 DAT	50 DAT	60 DAT	70 DAT	80 DAT	Mean
1.	Jeevan samba	4.0 (2.0)	3.0 (1.7)	3.5	6.0 (2.4)	12.5 (3.5)	1.5 (1.2)	2.0 (1.4)	1.5 (1.2)	2.0 (1.4)	4.2
2.	Malayalathan samba	1.0 (0.9)	0.0 (0.3)	0.5	3.0 (1.7)	11.0 (3.3)	1.5 (1.2)	3.0 (1.7)	1.0 (0.7)	1.0 (0.7)	3.4
3.	MDU 5	0.0 (0.1)	0.0 (0.1)	0.0	2.0 (1.0)	9.5 (3.1)	9.0 (2.9)	13.5 (3.7)	16.5 (4.1)	13.0 (3.6)	10.6
4.	Kavuni	0.0 (0.1)	0.0 (0.9)	0.0	0.0 (0.1)	1.0 (0.7)	0.5 (0.5)	1.0 (0.7)	1.0 (1.0)	1.5 (1.2)	0.7
5.	White ponni	2.0 (1.4)	1.5 (0.7)	1.7	10.0 (3.2)	16.0 (3.9)	14.5 (3.8)	15.0 (4.4)	25.0 (5.0)	23.5 (4.8)	17.3
6.	PS3	0.0 (0.1)	0.0 (1.3)	0.0	0.0 (0.1)	0.0 (0.1)	0.0 (0.1)	1.5 (1.2)	0.0 (0.1)	1.5 (1.2)	0.5
7.	ADT 49	2.0 (1.4)	4.0 (1.9) <sup>d</sup>	3.0	6.0 (2.4)	8.5 (2.9)	18.5 (4.3)	26.5 (5.1)	14.5 (3.8)	15.5 (3.9)	14.9
8.	IR 50	2.0 (1.4)	3.0 (1.4)	2.5	6.0 (2.4)	5.5 (2.3)	14.5 (3.8)	11.0 (3.3)	15.0 (3.8)	17.5 (4.2)	11.6
9.	Sornavari	0.0 (0.1)	1.0 (1.0)	0.5	1.5 (1.2)	1.6 (1.6)	5.5 (2.3)	6.0 (2.4)	2.5 (1.6)	0.5 (0.5)	2.9
10.	ADT 38	2.0 (1.4)	2.0 (0.7)	2.0	4.5 (2.1)	11.5 (3.2)	14.0 (3.7)	12.5 (3.5)	8.5 (2.9)	5.5 (2.3)	9.4
11.	Vellaikottai	0.0 (0.1)	0.0 (0.1)	0.0	0.0 (0.1)	1.5 (1.2)	1.5 (1.21)	0.0 (0.1)	1.0 (1.0)	0.5 (0.5)	0.7
12.	MDU 4	0.0 (0.1)	0.0 (0.1)	0.0	0.0 (0.1)	1.5 (1.2)	1.5 (1.2)	0.0 (0.10)	1.0 (1.0)	0.5 (0.5)	0.7
13.	PB1	2.0 (1.4)	0.0 (0.1)	1.0	4.5 (2.1)	3.5 (1.8)	2.5 (1.5)	1.5 (1.2)	1.5 (1.2)	4.5 (2.1)	3.0
14.	Kettanur	0.0 (0.1)	0.0 (1.7)	0.0	0.0 (0.1)	1.0 (1.2)	19.0 (4.4)	20.0 (4.5)	27.0 (5.2)	16.5 (4.1)	13.9
15.	ADT43	6.0 (2.4)	8.0 (2.3)	7.0	6.0 (2.4)	11.5 (3.2)	14.0 (3.7)	12.5 (3.5)	8.5 (2.9)	5.5 (2.3)	9.7
16.	Paiyur 1	5.0 (2.2)	3.0 (1.4)	4.0	21.0 (4.6)	23.5 (4.8)	18.0 (4.2)	14.5 (3.8)	17.0 (4.1)	9.5 (3.0)	17.2
17.	ASD 16	0.0 (0.3)	1.0 (0.7)	0.5	0.5 (0.5)	2.0 (1.1)	5.5 (2.3)	6.0 (2.4)	2.5 (1.6)	0.5 (0.5)	2.8
18.	Anna 4	0.0 (0.1)	0.0 (0.1)	0.0	0.5 (0.5)	4.5 (2.1)	1.0 (0.7)	2.0 (1.4)	2.0 (1.4)	0.0 (0.1)	1.7
19.	K 429	0.0 (0.1)	0.0 (0.1)	0.0	0.0 (0.1)	1.5 (1.21)	10.5 (3.2)	13.0 (3.6)	14.0 (3.7)	7.5 (2.7)	7.7
20.	Try 3	0.0 (0.1)	0.0 (0.1)	0.0	1.0 (0.7)	2.0 (1.1)	1.5 (1.2)	1.5 (1.2)	1.5 (1.2)	1.5 (1.2)	1.5
	S.Ed	0.7	0.6		1.8	0.5	1.4	2.2	2.9	2.6	
	CD < 0.1%	1.9	0.8		4.9	1.3	3.9	6.1	7.9	7.0	

Values in parenthesis are square root transformed values

**Table 2a:** Evaluation of rice varieties and landraces against paddy leaf mite, *O.oryzae*

S.No	Rice varieties	Mite population (No/ Leaf)									
		Kharif 2014			Kharif 2015						
		30 DAT	40 DAT	Mean	30 DAT	40 DAT	50 DAT	60 DAT	70 DAT	80 DAT	Mean
21.	Athira	0.0 (0.1)	0.0 (0.1)	0.0	0.0 (0.1)	0.5 (0.5)	1.5 (1.2)	2.0 (1.4)	2.0 (1.4)	0.0 (0.1)	1.0
22.	Kudouvazhai	0.0 (0.1)	0.0 (0.1)	0.0	0.0 (0.1)	0.0 (0.1)	2.5 (1.6)	3.0 (1.7)	2.0 (1.4)	1.0 (0.8)	1.4
23.	IR 20	0.0 (0.1)	1.0 (1.3)	0.5	4.0 (1.9)	1.5 (1.2)	3.0 (1.7)	4.0 (2.0)	0.0 (0.1)	1.5 (1.2)	2.3
24.	Kottanel	0.0 (0.1)	0.0 (0.1)	0.0	0.0 (0.1)	0.0 (0.8)	1.5 (1.2)	2.0 (1.4)	0.0 (0.1)	1.5 (1.2)	0.8
25.	Karungan	1.0 (0.9)	2.0 (1.6)	1.5	3.0 (1.7)	6.0 (2.4)	2.5 (1.57)	1.5 (1.2)	0.5 (1.0)	1.0 (0.7)	2.4
26.	ADT 39	3.0 (1.7)	4.0 (1.9)	3.5	3.5 (1.9)	7.5 (2.7)	8.0 (2.8)	10.5 (3.2)	15.0 (3.8)	7.5 (2.7)	8.7
27.	Varappukudainchan	0.0 (0.1)	0.0 (0.1) <sup>a</sup>	0.0	0.0 (0.1)	1.5 (0.9)	16.0 (4.0)	13.5 (3.6)	15.0 (3.8)	17.5 (4.2)	10.6
28.	Avasara samba	4.0 (2.0)	4.0 (1.7)	4.0	6.5 (2.5)	7.5 (2.7)	8.0 (2.8)	10.5 (3.2)	14.5 (3.8)	15.5 (3.9)	10.4
29..	Savulu samba	2.0 (1.4)	2.0 (1.2)	2.0	5.0 (2.2)	7.0 (2.6)	10.5 (3.23) <sup>g</sup>	15.0 (3.9)	16.5 (4.1)	16.5 (4.0)	11.7
30.	Mapillai samba	2.0 (1.4)	1.0 (1.3)	1.5	3.5 (1.9)	5.5 (2.3)	3.5 (1.9)	11.5 (3.4)	16.5 (4.1)	15.5 (3.9)	9.3
31.	Vellaikudouvazhai	0.0 (0.1)	0.0 (0.1)	0.0	0.0 (0.1)	0.5 (0.5)	1.0 (0.7)	1.5 (1.2)	1.0 (0.7)	1.0 (0.7)	0.8
32.	Chettysamba	0.0 (0.1)	0.0 (0.1)	0.0	0.0 (0.1)	1.5 (0.9)	1.0 (0.7)	1.5 (1.2)	0.5 (0.5)	0.0 (0.1)	0.7
33.	Manavai	0.0 (0.1)	0.0 (0.1)	0.0	0.0 (0.1)	0.0 (0.0)	3.0 (1.7)	2.0 (1.4)	0.5 (0.5)	0.5 (0.5)	1.0
34.	Aruphudhamkuruvai	2.0 (1.4)	0.0 (0.1)	0.0	3.5 (1.9)	5.5 (2.3)	3.5 (1.8)	1.5 (1.2)	2.0 (1.4)	0.0 (0.0)	2.7
35.	Karrupunel	0.0 (0.1)	0.0 (0.1)	0.0	0.0 (0.1)	1.5 (1.2)	1.5 (1.2)	11.5 (3.4)	16.5 (4.1)	20.0 (4.5)	8.6
36.	Co-43	4.0 (2.0)	2.0 (0.7)	3.0	8.0 (2.8)	7.0 (2.6)	7.5 (2.7)	12.5 (3.5)	14.0 (3.7)	17.0 (4.1)	11.0
37.	PS1	0.0 (0.1)	0.0 (0.1)	0.0	0.0 (0.1)	2.5 (1.6)	2.0 (1.4)	1.5 (1.2)	0.0 (0.1)	0.0 (0.1)	1.0
38.	PS2	0.0 (0.1)	0.0 (0.1)	0.0	0.0 (0.1)	2.5 (1.6)	2.5 (1.5)	1.5 (1.2)	1.0 (0.8)	0.0 (0.1)	1.2
39.	Bhavani	8.0 (2.8)	2.0 (1.4)	5.0	15.5 (3.9)	17.0 (4.1)	1.5 (1.2)	2.0 (1.4)	0.0 (0.1)	0.0 (0.1)	6.0
40.	MDU 3	0.0 (0.1)	0.0 (0.1)	0.0	0.0 (0.1)	11.0 (3.3)	0.0 (0.1)	1.0 (0.7)	0.5 (1.0)	1.5 (1.2)	2.3
	S.Ed	0.7	0.6		1.8	0.5	1.4	2.2	2.9	2.6	
	CD < 0.1%	1.9	0.8		4.9	1.3	3.9	6.1	7.9	7.0	

**Table 3:** Evaluation of rice varieties and landraces against paddy leaf mite damage

S.No	Rice varieties	Mite damage (%)									
		Kharif 2014			Kharif 2015						
		30 DAT	40 DAT	Mean	30 DAT	40 DAT	50 DAT	60 DAT	70 DAT	80 DAT	Mean
1.	Jeevan samba	25.0 (30.0)	10.0 (18.4)	17.5	25.0 (29.9)	40.0 (39.1)	5.0 (10.1)	15.0 (22.5)	5.0 (10.1)	5.0 (10.1)	15.8
2.	Malayalathan samba	10.0 (18.4)	8.0 (16.4)	9.0	25.0 (29.9)	40.1 (39.1)	45.0 (42.1)	45.0 (42.1)	45.0 (42.1)	30.0 (32.9)	3.8
3.	MDU 5	8.0 (16.4)	3.0 (9.8)	5.5	10.0 (14.2)	30.0 (32.9)	30.0 (32.9)	45.0 (42.1)	35.0 (36.2)	40.0 (38.7)	31.6
4.	Kavuni	0.0 (1.8)	0.0 (1.8)	0.0	0.0 (1.8)	5.0 (10.1)	15.0 (22.5)	10.0 (14.2)	0.0 (1.8)	0.0 (1.8)	50.0
5.	White ponni	12.0 (20.3)	8.0 (16.4)	10.0	60.0 (51.3)	40.0 (39.1)	45.0 (42.1)	30.0 (32.9)	45.0 (42.1)	30.0 (32.9)	41.6
6.	PS3	0.0 (1.8)	0.0 (1.8)	0.0	0.0 (1.8)	5.0 (10.1)	5.0 (10.1)	0.0 (1.8)	5.0 (10.1)	0.0 (0.10)	6.60
7.	ADT 49	12.0 (20.3)	14.0 (22.0)	13.0	25.0 (29.9)	30.0 (32.9)	35.0 (36.2)	15.0 (22.5)	10.0 (14.2)	5.0 (10.1)	20.0
8.	IR 50	14.5 (22.4)	16.0 (23.6)	15.2	25.0 (29.9)	25.0 (29.9)	35.0 (36.2)	15.0 (22.5)	35.0 (36.2)	55.0 (47.9)	31.6
9.	Sornavari	2.0 (7.9)	2.0 (7.9)	2.0	5.0 (10.1)	10.0 (14.2)	25.0 (29.9)	35.0 (36.2)	15.0 (22.5)	5.0 (10.1)	15.8
10.	ADT 38	8.0	6.0	7.0	45.0	35.0	35.0	30.0	35.0	35.0	35.8

		(16.4)	(14.1)		(42.1)	(36.2)	(36.2)	(32.9)	(36.2)	(36.2)	
11.	Vellaikottai	0.0 (1.8)	0.0 (1.8)	0.0	0.0 (1.8)	10.0 (14.2)	5.0 (10.1)	10.0 (14.2)	10.0 (14.2)	5.0 (10.1)	6.6
12.	MDU 4	0.0 (1.8)	0.0 (1.8)	0.0	10.0 (14.2)	15.0 (22.5)	0.0 (0.18)	15.0 (22.5)	20.0 (20.5)	25.0 (29.9)	14.1
13.	PB1	4.0 (11.4)	0.0 (1.8)	2.0	10.0 (14.2)	15.0 (22.5)	0.0 (0.18)	15.0 (22.5)	20.0 (20.5)	25.0 (29.9)	14.1
14.	Kettanur	0.0 (1.8)	0.0 (1.8)	0.0	5.0 (10.1)	10.0 (14.2)	55.0 (47.9)	65.0 (53.8)	75.0 (60.1)	45.0 (42.1)	42.5
15.	ADT43	28.0 (31.9)	29.0 (32.6)	28.5	30.0 (32.9)	55.0 (47.9)	65.0 (53.8)	60.0 (51.3)	60.0 (51.3)	35.0 (36.2)	50.8
16.	Paiyur 1	20.0 (26.6)	14.0 (22.0)	17.0	95.0 (80.6)	75.0 (60.1)	45.0 (42.1)	15.0 (22.5)	5.0 (10.1)	5.0 (10.1)	40.0
17.	ASD 16	4.0 (11.4)	8.0 (16.4)	6.0	0.0 (1.8)	15.0 (22.5)	35.0 (36.2)	25.0 (29.9)	15.0 (22.5)	20.0 (26.6)	27.5
18.	Anna 4	0.0 (1.8)	0.0 (1.8)	0.0	20.0 (26.6)	15.0 (22.5)	5.0 (10.1)	5.0 (10.1)	5.0 (10.1)	5.0 (10.1)	9.1
19.	K 429	0.0 (1.8)	0.0 (1.8)	0.0	0.0 (0.18)	15.0 (22.5)	35.0 (36.2)	25.0 (29.9)	15.0 (22.5)	20.0 (26.6)	18.3
20.	Try 3	0.0 (1.8)	0.0 (1.8)	0.0	5.0 (10.1)	5.0 (10.1)	5.0 (10.1)	5.0 (10.1)	5.0 (10.1)	5.0 (10.1)	5.0
	S.Ed	0.7	0.7		8.91	12.1	13.0	13.7	8.00	8.10	
	CD < 0.1%	1.9	1.4		24.4	33.1	35.5	37.5	21.9	22.2	

Table 3a: Evaluation of rice varieties and landraces against paddy leaf mite damage

S.No	Rice varieties	Mite damage (%)									
		Kharif 2014			Kharif 2015						
		30 DAT	40 DAT	Mean	30 DAT	40 DAT	50 DAT	60 DAT	70 DAT	80 DAT	Mean
21.	Athira	0.0 (1.8)	0.0 (1.8)	0.0	0.0 (1.8)	5.0 (10.1)	5.0 (10.1)	10.0 (18.4)	10.0 (18.4)	0.0 (1.8)	5.0
22.	Kudouvazhai	0.0 (1.8)	0.0 (1.8)	0.0	15.0 (22.5)	25.0 (29.9)	15.0 (22.5)	15.0 (22.5)	10.0 (18.4)	5.0 (10.1)	14.1
23.	IR 20	4.0 (11.4)	0.0 (0.2)	2.0	15.0 (22.5)	15.0 (22.5)	5.0 (10.1)	5.0 (10.1)	5.0 (10.1)	0.0 (1.8)	7.5
24.	Kottanel	0.0 (1.8)	0.0 (1.8)	0.0	0.0 (1.8)	5.0 (10.1)	5.0 (10.1)	10.0 (18.4)	10.0 (18.4)	0.0 (1.8)	5.0
25.	Karungan	4.0 (11.4)	6.0 (14.1)	5.0	25.0 (29.9)	20.0 (26.6)	15.0 (22.5)	5.0 (10.1)	5.0 (10.1)	5.0 (10.1)	12.5
26.	ADT 39	12.0 (20.3)	10.0 (18.4)	16.0	45.0 (42.1)	25.0 (29.9)	40.0 (39.9)	50.0 (45.0)	65.0 (53.8)	85.0 (67.5)	51.6
27.	Varappukudainchan	0.0 (1.8)	0.0 (1.8)	0.0	0.0 (1.8)	5.0 (10.1)	35.0 (36.2)	50.0 (53.8)	45.0 (42.1)	25.0 (29.9)	26.6
28.	Avasara samba	14.0 (22.0)	10.0 (18.4)	12.0	35.0 (36.2)	25.0 (29.9)	35.0 (36.2)	45.0 (42.1)	10.0 (18.4)	60.0 (50.9)	35.0
29..	Savulu samba	0.0 (1.8)	8.0 (16.4)	4.0	45.0 (42.1)	25.0 (29.9)	40.0 (39.9)	45.0 (42.1)	65.0 (53.8)	85.0 (37.5)	50.8
30.	Mapillai samba	8.0 (16.4)	4.0 (11.4)	6.0	15.0 (22.5)	35.0 (36.2)	5.0 (10.1)	5.0 (10.1)	10.0 (18.4)	5.0 (10.1)	12.5
31.	Vellaikudouvazhai	0.0 (1.8)	0.0 (1.8)	0.0	5.0 (10.1)	10.0 (18.4)	15.0 (22.5)	25.0 (29.9)	40.0 (39.9)	15.0 (22.5)	18.3
32.	Chettysamba	0.0 (1.8)	0.0 (1.8)	0.0	5.0 (10.1)	5.0 (10.1)	5.0 (10.1)	5.0 (10.1)	0.0 (1.8)	0.0 (1.8)	3.3
33.	Manavai	0.0 (1.8)	0.0 (1.8)	0.0	0.0 (1.8)	10.0 (18.4)	5.0 (10.1)	5.0 (10.1)	25.0 (29.9)	45.0 (42.1)	22.5
34.	Aruphudhamkuruvai	9.0 (17.4)	4.0 (11.4)	6.5	15.0 (22.5)	25.0 (29.9) <sup>a</sup>	15.0 (22.5)	10.0 (18.4)	5.0 (10.1)	5.0 (10.1)	12.5
35.	Karrupunel	0.0 (1.8)	0.0 (1.8)	0.0	0.0 (1.8)	10.0 (18.4)	5.0 (10.1)	15.0 (22.5)	45.0 (42.1)	25.0 (29.9)	16.6
36.	Co-43	25.0 (30.0)	14.0 (22.0)	19.5	30.0 (32.9)	35.0 (36.2)	30.0 (32.9)	75.0 (62.0)	40.0 (39.9)	45.0 (42.1)	42.5
37.	PS1	0.0 (1.8)	0.0 (1.8)	0.0	0.0 (0.18)	5.0 (10.1)	5.0 (10.1)	0.0 (1.8)	5.0 (10.1)	0.0 (1.8)	2.5
38.	PS2	0.0 (1.8)	0.0 (1.8)	0.0	0.0 (1.8)	15.0 (22.5)	5.0 (10.1)	10.0 (18.4)	0.0 (1.8)	5.0 (10.1)	5.8
39.	Bhavani	22.0 (28.0)	14.0 (22.0)	18.0	30.0 (32.9)	40.0 (39.9)	5.0 (10.1)	5.0 (10.1)	10.0 (18.4)	5.0 (10.1)	15.8
40.	MDU 3	0.0 (1.8)	0.0 (1.8)	0.0	10.0 (18.4)	30.0 (32.9)	0.0 (1.8)	0.0 (1.8)	5.0 (10.1)	5.0 (10.1)	8.3
	S.Ed	0.7	0.7		8.91	12.1	13.0	13.7	8.00	8.10	
	CD < 0.1%	1.9	1.4		24.4	33.1	35.5	37.5	21.9	22.2	

**Table 4:** Rating of different rice varieties and landraces to *O.oryzae* – Kharif 2015

S.No	Rice varieties	Mean Mite population / 10 cm	Mean Leaf damage (%)	Leaf damage Rating	Level of Resistance
1.	Jeevan samba	4.2	15.8	2	R
2.	Malayalathan samba	3.4	3.8	1	R
3.	MDU 5	10.6	31.6	4	R
4.	Kavuni	0.7	50.0	5	MR
5.	White ponni	17.3	41.6	5	MR
6.	PS3	0.5	6.6	1	R
7.	ADT 49	14.9	20.0	2	R
8.	IR 50	11.6	31.6	4	R
9.	Sornavari	2.9	15.8	2	R
10.	ADT 38	9.4	35.8	4	R
11.	Vellaikottai	0.7	6.6	1	R
12.	MDU 4	0.7	14.1	2	R
13.	PB1	3.0	14.1	2	R
14.	Kettanur	13.9	42.5	5	MR
15.	ADT43	9.7	50.8	5	MR
16.	Paiyur 1	17.2	40.0	4	R
17.	ASD 16	2.8	27.5	3	R
18.	Anna 4	1.7	9.1	1	R
19.	K 429	7.7	18.3	2	R
20.	Try 3	1.5	5.0	1	R
21.	Athira	1.0	5.0	1	R
22.	Kudouvazhai	1.4	14.1	2	R
23.	IR 20	2.3	7.5	1	R
24.	Kottanel	0.8	5.0	1	R
25.	Karungan	2.4	12.5	2	R
26.	ADT 39	8.7	51.6	6	MR
27.	Varappukudainchan	10.6	26.6	3	R
28.	Avasara samba	10.4	35.0	4	R
29..	Savulu samba	11.7	50.8	5	MR
30.	Mapillai samba	9.3	12.5	2	R
31.	Vellaikudouvazhai	0.8	18.3	2	R
32.	Chettysamba	0.7	3.3	1	R
33.	Manavai	1.0	22.5	3	R
34.	Arupudhamkuruvai	2.7	12.5	2	R
35.	Karupunel	8.6	16.6	2	R
36.	Co-43	11.0	42.5	5	MR
37.	PS1	1.0	2.5	1	R
38.	PS2	1.2	5.8	1	R
39.	Bhavani	6.0	15.8	2	R
40.	MDU 3	2.3	8.3	1	R

**R-** Resistant; **MR-**Moderate resistant

## Results and Discussion

Out of 40 rice varieties / landraces tested under natural conditions in pots against rice leaf mite during Kharif 2014 showed that twenty one varieties in main-field cultivation viz., MDU 5, Kavuni, PS3, Vellaikottai, MDU 4, Kettanur, Anna 4, K429, Try 3, Athira, Kudouvazhai, Kottanel, Varappukudainchan, Vellaikudouvazhai, Chetty samba, Manavai, Arupudhan kuruvai, Karupunel, PS1, PS2 and MDU 3 reported with Zero population of mites (Tables 2&2a). During Kharif 2015, the lowest to highest mean mite population ranged from 0.75 to 17.25 No.s / leaf. At the commencement of observation at 30 DAT, the highest population of mites was noticed in Paiyur 1 (21.0 No.s/leaf) during the initial period and reduced to 9.5 No.s/leaf at the end of the period with the onset of North east monsoon. The lowest mean mite damage was reported in PS1 (2.5 %), Chetty samba (3.3%) and Athira, kottanel, Try 3 (5.0 %) and the highest damage of 51.6 per cent was recorded in ADT 39 followed by 50.8 per cent in Savulu samba and ADT 43 (Tables 3&3a).

The leaf damage rating arrived with the mean leaf damage per cent ranged from 1.0 to 6.0 which indicate the damage ranged from 1.0 to 60 per cent in the tested varieties / landraces. The

results on categorization of resistance revealed that, out of 40 varieties / landraces tested towards rice mite imparts resistant to 35 varieties / landraces and the remaining contributes for moderately resistant varieties/ landraces viz., Kavuni, White ponni, Kettanur, ADT 43 and ADT 39 (Table 4). The predominantly cultivated short duration variety Paiyur 1 during Kharif 2015 was found to be resistant and ADT 39 during Rabi season was found to be moderately resistant. No variety was found susceptible against *O. oryzae*. No published records regarding the physical basis of resistance of paddy varieties to *O. oryzae* were found. Indeed, Mukherjee *et al.*, (1989) [6] found no influence of morphological and physical characters on the population of rice mites. However, for other crops and mite species, leaf thickness, hairiness and interveinal distance do play a significant role in relative abundance of mites (Santharam, 1976; Sithanatham and Velayutham, 1979) [9, 10].

## Conclusion

The present study revealed that, under evaluation studies on the screening of different rice varieties / landraces towards rice mite, *O. oryzae* implies that the predominantly cultivated short duration variety, Paiyur 1 showed Resistant. Out of 40

varieties / landraces evaluated, No variety was found to be susceptible against *O.oryzae*. Another predominantly cultivated variety, ADT 39 during rabi season was found to be moderately resistant. Most of the varieties tested showed resistance might be due to the presence of trichomes on the leaves which might reduce the activity of the mites. Radhakrishnan and Ramaraju (2009) [7] found that ASD 16, ADTRH1 and Co47 were moderately resistant to leaf mite and ADT 45, TN1, IR 50 and ADT 36 were moderately susceptible and ADT 43 found to be the most susceptible variety.

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