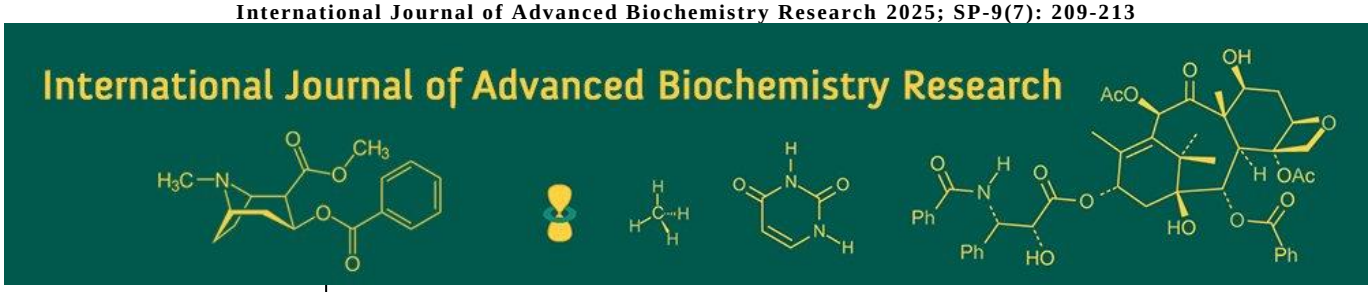

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Bio-efficacy of different pesticide against rice panicle mite, *Steneotarsonemus spinki* Smiley

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Abstract
An experiment was conducted during *Kharif*-2023-24 at Research cum Instructional Farm of Barrister Thakur Chhedilal College of Agriculture and Research Station Bilaspur, Indira Gandhi Krishi Vishwavidyalaya, Raipur, (C.G.), India to evaluate the bio-efficacy of different pesticide against rice panicle mite (*Steneotarsonemus spinki* Smiley). Among all the pesticides tested, diafenthiuron 50 WP + propiconazole 25% EC @ 1.5 g + 1.0 ml/litre (3.50 mite/2 cm leaf sheath) were found most effective in controlling the *S. spinki* which was at par with treatment Profenophos 50% EC + propiconazole 25% EC @ 2.0 ml + 1.0 ml/litre (4.98 mite/2 cm leaf sheath) and fenpyroximate 5% EC @ 1.0 ml/litre (5.89 mite/2 cm leaf sheath) in terms of reduction of rice panicle mite population. The highest grain and straw yield (5157 kg/ha and 6450 kg/ha) were recorded in the treatment diafenthiuron 50 WP + propiconazole 25% EC @ 1.5 g + 1.0 ml/litre. The next best treatment profenophos 50% EC + propiconazole 25% EC @ 2.0 ml + 1.0 ml/litre (4900 kg/ha grain and 6300 kg/ha straw yield) and fenpyroximate 5% EC @ 1.0 ml/litre (4676 kg/ha grain and 6210 kg/ha straw yield). In terms of Cost benefit ratio 1:3.52 the treatment diafenthiuron 50 WP + propiconazole 25% EC @ 1.5 g + 1.0 ml/litre was found most superior over the rest of the treatments.

Keywords: *Steneotarsonemus spinki* Smiley, rice, pesticide

Introduction
Rice (*Oryza sativa* L.) is monocotyledonous crop, belongs to family Poaceae and genus *Oryzae*. Rice is grown all over the world [15]. It is a staple food for more than 60 percent of the world's population and grown in a wide range of environments [1]. It is the grain with the second highest worldwide production, after maize [2]. Mainly grown and consumed in Asian countries such as India, China, Japan, Indonesia, Thailand, Pakistan, Bangladesh, North and South Koreas, Myanmar, Philippines, Sri Lanka *etc*. [3]. According to the Ministry of Agriculture and Farmers' Welfare, the total area under rice cultivation in India during the *Kharif* season of 2022-23 was 44.88 million hectares. The production of rice during the season was 130.84 million tones and the productivity was about 2390 kg/ha. China ranks first in terms of production & India rank second [4]. Low yields of rice have been attributed to a number of factors. Traditionally, insect pests, diseases and weeds are the triple evils responsible for low yields of rice in India. Mites are also assuming the major pest status. Among different species of mites associated with rice crop, the sheath mite or panicle mite and the leaf mite are most important.
The sheath mite, *Steneotarsonemus spinki* Smiley which belongs to family Tarsonemidae [5]. The panicle mite *S. spinki* is the most important and destructive mite pest attacking rice crop worldwide [6]. It is a small microscopic present in colonies in the inter cellular space of the leaf sheaths of rice plants. The mites can be found in the inner part of the midrib of leaf blades (sheath) at the grain development stage and multiply there throughout the vegetative stage of the plant growth. During the reproductive stage, panicle mite feeds on the reproductive parts of flowers resulting in grain sterility and is a vector/carrier of pathogenic fungi like *Acrocyclindrium oryzae*, *Fusarium moniliformae*, *Helminthosporium oryzae* etc. Mites also migrate to the developing grains in milky stage, causes spikelet sterility and partially filled and ill filled grains which results in grain discoloration [7]. Damage of *S. spinki* along with sheath rot resulted in reduction in panicle size, height and length [8].

In India, several researchers reported that the mite damage caused significant reduction in rice yields in Gujarat and West Bengal. In recent years, the panicle mite has become a major pest in rice growing areas of Telangana and Andhra Pradesh. The yield losses due to *S. spinki* ranged from 4.9-23.7% [9] in India and from 30-90% in World [10]. For the management of the panicle mite different management practices were done by various scientists in different part of India. Among the management practices, chemical management is less time taking, effective and easily available for farmers. Most of the single chemical and multiple spray can cause resistant, resurgence and residue so,for management of mite, combination of chemical with different group of pesticides will helpful. Fenpyroximate alone and combination sprays i.e. spiromesifen + propiconazole and diafenthiuron + propiconazole were effective in controlling the pest andassociated grain discolouration [11]. Spray of dicofol @ 500 g a.i/ha, ethion @ 500 g a.i/ha, spiromesifen @ 72 g a.i/ha and profenophos @ 500 g a.i/ha were found effective against sheath mite in rice [12]. In Chhattisgarh, the management of panicle mite in rice was adequately studied, but the information on other acaricides and their combinations with fungicides was limited. Therefore, the present study was taken up to evaluate the bio-efficacy of different pesticides alone and in combination with fungicide against rice panicle mite under field conditions.

Materials and Methods

The field experiment was conducted during *Kharif* 2023-24 for the management of rice panicle mite with pesticides at Research cum Instructional Farm of Barrister Thakur Chhedilal College of Agriculture and Research Station Bilaspur, IGKV Raipur (C.G.), India. The experiment was laid out in Randomized Block Design (RBD) with three replications. The plot size was 12 m2 (4×3 m) area, with a spacing of 20×10 cm. The rice variety Swarna susceptible to panicle mite was chosen for conducting the experiment. Seven treatments *viz*., T_1 spiromesifen 22.9% w/w SC @ 1.0 ml/litre, T_2-propargite 57% EC @ 1.0 ml/litre, T_3-fenpyroximate 5% EC @ 1.0 ml/litre, T_4-ethion 50% EC @ 3.0 ml/litre, T_5-diafenthiuron 50 WP + propiconazole 25% EC @ 1.5 g + 1.0 ml/litre, T_6-propargite 57% EC + propiconazole 25% EC @ 1.5 ml + 1.0 ml/litre, T_7-profenophos 50% EC + propiconazole 25% EC @ 2.0 ml + 1.0 ml/litre along with untreated control (T_8) (Table 1) were tested for their bio-efficacy against panicle mite and compared with control. All the recommended agronomic practices were followed in all the treatments except sprayings. The testing pesticide were applied twice at panicle initiation stage (Flag leaf initiation) and second spray was done at 15 days after first spraying as foliar spray with a knapsack sprayer @ 500 litres spray fluid per ha. Care was taken to avoid drift of spray solution to the adjacent plots. Total 10 leaf sheaths of rice were randomly selected from each net plot and brought to the laboratory at Department of Entomology, BTC CRAS Bilaspur (C.G.) in separate polythene bags. The observations of the panicle mite population were recorded before spray and after 1, 3, 7 and 14 days after spray on 2 cm leaf sheath (mobile stages). The yield data on grain and straw were recorded plot wise (kg per plot) and were converted as on hector basis. The economics of each treatment were also worked out.

Results and Discussion

The data on the efficacy of various pesticidal treatments against *S. spinki* was presented as well as pooled over as under:

At first spray

During the year 2023-24, the pre-treatment population of panicle mite was ranging between 14.07 to 16.07 mites/2 cm sheath leaf (Table 1). One day after the first spray the lowest panicle mite population was recorded in treatmentT_5-diafenthiuron 50 WP + propiconazole 25% EC @ 1.5 g + 1.0 ml/litre (12.46 mite/2 cm leaf sheath)which was at par with T_7-profenophos 50% EC + propiconazole 25% EC @ 2.0 ml + 1.0 ml/litre (12.30 mite/2 cm leaf sheath)which was also on par with T_1-spiromesifen 22.9% w/w SC @ 1.0 ml/litre (12.73 mite/2 cm leaf sheath), T_3-fenpyroximate 5% EC @ 1.0 ml/litre (13.03 mite/2 cm leaf sheath), T_6-propargite 57% EC + propiconazole 25% EC @ 1.5 ml + 1.0 ml/litre, (13.03 mite/2 cm leaf sheath), T_4-ethion 50% EC @ 3.0 ml/litre (14.10 mite/2 cm leaf sheath) and T_2-propargite 57% EC @ 1.0 ml/litre (14.50 mite/2 cm leaf sheath). The maximum panicle mite population was recorded in T_8 (control) (16.37 mite/2 cm leaf sheath).

Three days after first spray, the maximum reduction in panicle mite population was noticed in the treatmentT_5-diafenthiuron 50 WP + propiconazole 25% EC @ 1.5 g + 1.0 ml/litre (4.03 mite/2 cm leaf sheath) followed by T_7-profenophos 50% EC + propiconazole 25% EC @ 2.0 ml + 1.0 ml/litre (7.03 mite/2 cm leaf sheath) which was at par with T_3-fenpyroximate 5% EC @ 1.0 ml/litre (8.50 mite/2 cm leaf sheath) which was also on par with T_6-propargite 57% EC + propiconazole 25% EC @ 1.5 ml + 1.0 ml/litre (9.70 mite/2 cm leaf sheath), T_1-spiromesifen 22.9% w/w SC @ 1.0 ml/litre (10.30 mite/2 cm leaf sheath), T_4-ethion 50% EC @ 3.0 ml/litre (11.87 mite/2 cm leaf sheath) and T_2-propargite 57% EC @ 1.0 ml/litre (12.03 mite/2 cm leaf sheath), respectively. The highest population of panicle mite (16.42 mite/2 cm leaf sheath) was received in case of untreated plot (T_8).

Seven days after the first spray, pesticide treated withT_5-diafenthiuron 50 WP + propiconazole 25% EC @ 1.5 g + 1.0 ml/litre reducing the population of panicle mite (3.50 mite/2 cm leaf sheath)followed byT_7-profenophos 50% EC + propiconazole 25% EC @ 2.0 ml + 1.0 ml/litre (5.07 mite/2 cm leaf sheath) which was at par with T_3-fenpyroximate 5% EC @ 1.0 ml/litre (5.85 mite/2 cm leaf sheath) then in reducing order T_6-propargite 57% EC + propiconazole 25% EC @ 1.5 ml + 1.0 ml/litre (7.60 mite/2 cm leaf sheath), T_1-spiromesifen 22.9% w/w SC @ 1.0 ml/litre (8.10 mite/2 cm leaf sheath), T_4-ethion 50% EC @ 3.0 ml/litre (9.73 mite/2 cm leaf sheath) and T_2-propargite 57% EC @ 1.0 ml/litre (10.20 mite/2 cm leaf sheath) was effective respectively. The maximum population of panicle mite (16.50 mite/2 cm leaf sheath) was found in case of untreated control (T_8).

The observations taken on fourteen days after spray data revealed significant differences in the population of panicle mitein among the treatments. The plot treated withT_5-diafenthiuron 50 WP + propiconazole 25% EC @ 1.5 g + 1.0 ml/litre was recorded minimum population (4.20 mite/2 cm leaf sheath) followed by T_7-profenophos 50% EC + propiconazole 25% EC @ 2.0 ml + 1.0 ml/litre (6.03 mite/2 cm leaf sheath) which was at par with T_3-fenpyroximate 5% EC @ 1.0 ml/litre (6.87 mite/2 cm leaf sheath) but differed

significantly from T_6-propargite 57% EC + propiconazole 25% EC @ 1.5 ml + 1.0 ml/litre (8.13 mite/2 cm leaf sheath). The next best treatment was T_1-spiromesifen 22.9% w/w SC @ 1.0 ml/litre (10.20 mite/2 cm leaf sheath) and T_4-ethion 50% EC @ 3.0 ml/litre (11.10 mite/2 cm leaf sheath) which was at par with each other. T_2-propargite 57% EC @ 1.0 ml/litre (12.10 mite/2 cm leaf sheath) was seen least effective among all treatments but it was significantly superior to untreated control (T_8) in which highest panicle mite populations (16.56 mite/2 cm leaf sheath) were recorded.

At second spray

It is evident from the data (Table 1) the rice panicle mite populations were found significantly differs before second spray in the experimental plots. Due to seriousness of pest, during research second spray was applied in continuity at 15 days after first spray and post treatment observation was observed after 1, 3, 7 and 14 days of second pesticides application.

Further, one day after the application of second spray, the panicle mite population was lowest in case of T_5-diafenthiuron 50 WP + propiconazole 25% EC @ 1.5 g + 1.0 ml/litre (2.13 mite/2 cm leaf sheath) followed byT_7-profenophos 50% EC + propiconazole 25% EC @ 2.0 ml + 1.0 ml/litre (5.10 mite/2 cm leaf sheath). The next effective treatment was T_3-fenpyroximate 5% EC @ 1.0 ml/litre (5.80 mite/2 cm leaf sheath) which was at par with T_6-propargite 57% EC + propiconazole 25% EC @ 1.5 ml + 1.0 ml/litre (7.53 mite/2 cm leaf sheath), T_1-spiromesifen 22.9% w/w SC @ 1.0 ml/litre (9.27 mite/2 cm leaf sheath), T_4-ethion 50% EC @ 3.0 ml/litre (10.23 mite/2 cm leaf sheath). The treatment T_2-propargite 57% EC @ 1.0 ml/litre with (11.23 mite/2 cm leaf sheath) was seen least effective among all pesticides. The highest mite population (16.61 mite/2 cm leaf sheath) was recorded in an untreated control plot (T_8).

Three days after second spray, the maximum reduction in panicle mite population was recorded in T_5-Diafenthiuron 50 WP + propiconazole 25% EC @ 1.5 g + 1.0 ml/litre (0.87 mite/2 cm leaf sheath) followed by T_7-profenophos 50% EC + propiconazole 25% EC @ 2.0 ml + 1.0 ml/litre (2.17 mite/2 cm leaf sheath), which was at par with T_3-fenpyroximate 5% EC @ 1.0 ml/litre (3.60 mite/2 cm leaf sheath). The next effective treatment was T_6-propargite 57% EC + propiconazole 25% EC @ 1.5 ml + 1.0 ml/litre (4.63 mite/2 cm leaf sheath), followed by T_1-spiromesifen 22.9% w/w SC @ 1.0 ml/litre (7.63 mite/2 cm leaf sheath), T_4-ethion 50% EC @ 3.0 ml/litre (8.50 mite/2 cm leaf sheath). The least effective treatment was T_2-propargite 57% EC @ 1.0 ml/litre with (9.17 mite/2 cm leaf sheath) but it was significantly superior to untreated control plot (T_8) in which the highest mite population (16.70 mite/2 cm leaf sheath) was recorded during observation.

It is crystal clear from data recorded at seven days after second spray the plot treated withT_5-diafenthiuron 50 WP + propiconazole 25% EC @ 1.5 g + 1.0 ml/litre with (0.47 mite/2 cm leaf sheath) was recorded minimum mite population which was at par with T_7-profenophos 50% EC + propiconazole 25% EC @ 2.0 ml + 1.0 ml/litre (1.27 mite/2 cm leaf sheath) which also on par with T_3-fenpyroximate 5% EC @ 1.0 ml/litre (2.10 mite/2 cm leaf sheath). The next best treatment was T_6-propargite 57% EC + propiconazole 25% EC @ 1.5 ml + 1.0 ml/litre with (2.70 mite/2 cm leaf sheath) followed by T_1-spiromesifen 22.9% w/w SC @ 1.0 ml/litre (5.50 mite/2 cm leaf sheath) which was at par with T_4-ethion 50% EC @ 3.0 ml/litre (6.57 mite/2 cm leaf sheath). The treatment T_2-propargite 57% EC @ 1.0 ml/litre (7.27 mite/2 cm leaf sheath) was seen least effective among all pesticides. The highest mite population (16.87mite/2 cm leaf sheath) was recorded in an untreated control plot (T_8).

The observations taken on fourteen days after second spray, data revealed significant differences in the population of panicle mite among various treatments. The plot treated with T_5-diafenthiuron 50 WP + propiconazole 25% EC @ 1.5 g + 1.0 ml/litre was recorded minimum population (0.33 mite/2 cm leaf sheath) and it was at par with T_7-profenophos 50% EC + propiconazole 25% EC @ 2.0 ml + 1.0 ml/litre (0.90 mite/2 cm leaf sheath) which also on par with T_3-fenpyroximate 5% EC @ 1.0 ml/litre (1.40 mite/2 cm leaf sheath), T_6-propargite 57% EC + propiconazole 25% EC @ 1.5 ml + 1.0 ml/litre with (2.00 mite/2 cm leaf sheath), T_1-spiromesifen 22.9% w/w SC @ 1.0 ml/litre (4.30 mite/2 cm leaf sheath), T_4-ethion 50% EC @ 3.0 ml/litre (5.17 mite/2 cm leaf sheath). Treatment T_2-propargite 57% EC @ 1.0 ml/litre was seen least effective among all treatments with (6.17 mite/2 cm leaf sheath). The highest panicle mite population (17.28 mite/2 cm leaf sheath) was recorded in an untreated control plot (T_8).

Overall mean

The combined analysis of data (Table 1.) obtained after two sprayings, indicated that T_5-diafenthiuron 50 WP + propiconazole 25% EC @ 1.5 g + 1.0 ml/litre was found most effective against panicle mite, as it were recorded lowest overall population (3.50 mite/2 cm leaf sheath) which was at par with T_7-profenophos 50% EC + propiconazole 25% EC @ 2.0 ml + 1.0 ml/litre (4.98 mite/2 cm leaf sheath) whereas it was on par with T_3-fenpyroximate 5% EC @ 1.0 ml/litre (5.89 mite/2 cm leaf sheath). The next effective treatment was T_6-propargite 57% EC + propiconazole 25% EC @ 1.5 ml + 1.0 ml/litre (6.92 mite/2 cm leaf sheath), T_1-spiromesifen 22.9% w/w SC @ 1.0 ml/litre (8.50 mite/2 cm leaf sheath), T_4-ethion 50% EC @ 3.0 ml/litre (9.66 mite/2 cm leaf sheath). Treatment T_2-propargite 57% EC @ 1.0 ml/litre (10.33 mite/2 cm leaf sheath) was declared as the least effective treatment in among the pesticide. The highest panicle mite population (16.67 mite/2 cm leaf sheath) was recorded in an untreated control plot (T_8).

The findings are in conformity with Reddy *et al.* (2013) who work on the efficacy of four acaricidesand reported that diafenthiuron 50 WP in combination with propiconazole as an effective treatment against the panicle mite of rice [13]. Similarly, Bhanuand Reddy (2014) also reported that the diafenthiuron 50 SC @ 450 g a.i./ha were found most effective in controlling the *S. spinki*.Among the other effective pesticides chlorfenapyr 10SC was also found effective [14].

The present findings are in agreement with the earlier reports Shukla *et al.* (2017) also reported that diafenthiuron 50 WP @ 0.05% were found most effective in controlling the *S. spinki*. The next best treatment was chlorfenapyr 10 SC @ 0.015% and fenpyroximate 5 SC @ 0.005% in terms of a reduction of rice panicle mite population. The highest grain and straw yield were recorded in the treatment diafenthiuron 50 WP @ 0.05% which were followed by chlorfenapyr 10 SC @ 0.015% and fenpyroximate 5 SC @ 0.005% [3].

Grain Yield and Straw Yield

The highest grain and straw yield were obtained from the treatment T_5-diafenthiuron 50 WP + propiconazole 25% EC @ 1.5 g + 1.0 ml/litre (5157 kg/ha grain and 6450 kg/ha straw) whereas the lowest grain and straw yield of2666 kg/ha and 5240 kg/ha, respectively were recorded in case of T_8 (control) (Table 2).The economics is calculated by considering the profit increase over the untreated control of different treatments. The treatment T_5-diafenthiuron 50 WP + propiconazole 25% EC @ 1.5 g + 1.0 ml/litre registered higher net income (Rs. 86739.50) and BCR (Benefit cost ratio) (1:3.52) and followed by T_7-profenophos 50% EC + propiconazole 25% EC @ 2.0 ml + 1.0 ml/litre with net income (Rs. 80260.00) and BCR (1:3.30). The lowest net income (Rs. 30751.00) was recorded in untreated control (T_8).

The present studies were also supported by Reddy *et al*. (2013) who reported that the highest grain yield found in diafenthiuron 50 WP + propiconazole 25 EC @ 1.5 g + 1 ml/l (6768 kg/ha). The lowest grain yield was recorded in propargite 57 EC @ 1.5 ml/l (6358 kg/ha) but significantly superior over untreated control (5667 kg/ha) [13].

Table 1: Effect of acaricides on population of rice panicle mite under field condition during *Kharif* 2023-24

S. No.	Treatments	Dose per litre g/ml	B.S. (2 cm leaf sheath)	Average Population of rice panicle mite/2 cm leaf sheath								
				First Spray				Second Spray				
				1 DAS	3 DAS	7 DAS	14 DAS	1 DAS	3 DAS	7 DAS	14 DAS	Overall mean
T_1	Spiromesifen 22.9% w/w SC	1.0 ml	14.40 (3.84)	12.73 (3.62)bc	10.30 (3.35)de	8.10 (2.98)de	10.20 (3.32)de	9.27 (3.20)de	7.63 (2.94)e	5.50 (2.55)e	4.30 (2.24)e	8.50 (3.06)de
T_2	Propargite 57% EC	1.0 ml	16.03 (4.13)	14.50 (3.90)fg	12.03 (3.60)fg	10.20 (3.34)fg	12.10 (3.60)fg	11.23 (3.49)fg	9.17 (3.17)fg	7.27 (2.85)fg	6.17 (2.67)fg	10.33 (3.34)fg
T_3	Fenpyroximate 5% EC	1.0 ml	15.10 (3.93)	13.03 (3.68)cd	8.50 (3.07)bc	5.85 (2.61)bc	6.87 (2.80)bc	5.80 (2.60)bc	3.60 (2.13)bc	2.10 (1.75)bc	1.40 (1.54)bc	5.89 (2.61)bc
T_4	Ethion 50% EC	3.0 ml	15.07 (4.01)	14.10 (3.85)def	11.87 (3.58)def	9.73 (3.22)ef	11.10 (3.42)ef	10.23 (3.34)ef	8.50 (3.08)ef	6.57 (2.72)ef	5.17 (2.43)ef	9.66 (3.16)ef
T_5	Diafenthiuron 50 WP + Propiconazole 25% EC	1.5 g + 1.0 ml	16.07 (4.13)	12.46 (3.56)a	4.03 (2.23)a	3.50 (2.05)a	4.20 (2.21)a	2.13 (1.75)a	0.87 (1.36)a	0.47 (1.21)a	0.33 (1.15)a	3.50 (2.03)a
T_6	Propargite 57% EC + Propiconazole 25% EC	1.5 ml + 1.0 ml	14.07 (3.84)	13.03 (3.70)de	9.70 (3.21)cd	7.60 (2.91)cd	8.13 (3.01)cd	7.53 (2.86)cd	4.63 (2.29)cd	2.70 (1.92)cd	2.00 (1.72)cd	6.92 (2.78)cd
T_7	Profenophos 50% EC + Propiconazole 25% EC	2.0 ml + 1.0 ml	15.13 (4.02)	12.30 (3.57)ab	7.03 (2.83)b	5.07 (2.45)b	6.03 (2.64)b	5.10 (2.41)b	2.17 (1.77)b	1.27 (1.49)ab	0.90 (1.37)ab	4.98 (2.42)ab
T_8	Untreated control	-	14.53 (3.84)	16.37 (4.13)h	16.42 (4.17)h	16.50 (4.18)h	16.56 (4.19)h	16.61 (4.20)h	16.70 (4.21)h	16.87 (4.23)h	17.28 (4.27)h	16.67 (4.20)h
SE(m±)		-	0.289	0.116	0.114	0.118	0.129	0.13	0.129	0.096	0.133	0.138
C.D. at 5%		-	NS	0.36	0.35	0.36	0.40	0.40	0.39	0.30	0.41	0.42

Note: Figures in parenthesis are square root transformed values, BS = Before spray, DAS = Day after spray, NS = non-significant

Table 2: Yield of rice grain in different treatments during *Kharif* 2023-24

Treatment		Grain Yield (kg/ha)	Straw Yield (kg/ha)
T_1	Spiromesifen 22.9%w/w SC	4209	6070
T_2	Propargite 57% EC	3850	6005
T_3	Fenpyroximate 5% EC	4676	6210
T_4	Ethion 50% EC	3962	6045
T_5	Diafenthiuron 50 WP + Propiconazole 25% EC	5157	6450
T_6	Propargite 57% EC + Propiconazole 25% EC	4449	6105
T_7	Profenophos 50% EC + Propiconazole 25% EC	4900	6300
T_8	Untreated control	2666	5240

Conclusion

The panicle mite, *S. spinki* is a serious pest of rice. On the basis of the study, it can be concluded that the pesticidediafenthiuron 50 WP + propiconazole 25% EC (3.50 mite/2 cm leaf sheath)was most effective in controlling the panicle mite of rice which was at par with profenophos 50% EC + propiconazole 25% EC (4.98 mite/2 cm leaf sheath). The next best treatment was fenpyroximate 5% EC (5.89 mite/2 cm leaf sheath) for controlling the panicle mite of rice.

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