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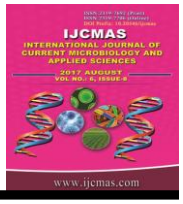

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Field Efficacy of Certain Insecticides against Rice Gundhi Bug [*Leptocorisa acuta* (Thonberg)] Under Agro-Climatic Condition of Allahabad, India

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A B S T R A C T

An experiment was conducted during *Kharif* season of 2016, to evaluate the field efficacy of certain insecticides against rice gundhi bug [*Leptocorisa acuta* (Thonberg)] under agro-climatic condition of Allahabad, at Central Research Farm, SHUATS, Naini, Allahabad. Three applications of seven insecticides viz Imidacloprid 17.8% SL, Trizophos 25% SP, Monocrotophos 36% SL, Thiamethoxam 25% WG, Acephate 75% SP, Carbaryl 50% SP, Malathion 50% EC were evaluated against Rice Gundhi bug, *Leptocorisa acuta*. Results were revealed that all the treatments were effective significantly to suppress population of gundhi bug as compared with control (3.51 bug/hill). And the treatment Imidacloprid was recorded lowest population of gundhi with (0.91 bug/hill) and found to be superior among all other treatments. This was followed by Thimethoxam (1.22 bug/hill) < Triazophos (1.44 bug/hill) < Monocrotophos (1.77 bug/hill) < Acephate (2.06 bug/hill) < Carbaryl (2.57 bug/hill) < Malathion (2.84 bug/hill) respectively**.**

Introduction

Rice (*Oryza sativa* L.) is the most important staple food crop with more than half of the world's population relying on rice as the major daily source of calories and protein. (Khanjani 2006) Asia accounts for about 90% of world's rice area and production.

Among the rice growing countries, India has largest area under rice in the world (about 44.6 mha) i.e. 28% of the world's area of production, and ranks second next to China. The share of India to the world's production is near about 22.1 percent. In Madhya Pradesh, the area under rice cultivation is 5144.6 million hectares with production of 5748.3 Million tonnes with a productivity of 1-2 t /ha (Anonymous, 2011).

Rice gundhi bug, *Leptocorisa acuta* (Thumb) is an important pest of rice (Rao and Prakash, 1995). The rice bug both nymphs and adults causes damage by feeding on the sap of milky grain and turns them chaffy.

Rice gundhi bug is one of the serious pests of rice in India and sometimes reduce yield by as much as 30% (Tiwari *et al.*, 2014; Banerjee *et al.*, 1982; Gupta *et al.*, 1993 and Israel *et al.*,

1961). The rice plant is subject to attack by more than 100 species of insects and 20 of them can cause economic damage (Pathak and Khan, 1994).

Materials and Methods

The experiment was conducted during the kharif, 2016, at Central Research Farm, SHUATS, Naini, Allahabad. In the experiment, the variety under supervision 'Rupali' was grown for this study.

Later the seedlings of sufficient age were transplanted to main field with a spacing of 20 × 10 cm in hills and all the agronomical practices viz. irrigation, fertilizer application and intercultural operations were followed as recommended for rice crop in this area to raise the crop.

Seven formulations of insecticides viz., Imidacloprid 17.8% SL @ 300g/ha, Thiamethoxam 25% WG @ 100g/ha, Traizophos 25% @ 625g/h, Acephate 75% SP, @ 800 ml/ha, Carbaryl 50% SP @ 1000g/h, Malathion 50% EC @ 1150 ml/h with Monocrotophos 36 % SL @ 1390 ml/ha against insect pest of rice. The trial was laid out in randomized block design with three replications. Observations on the incidence of Gundhi bug population was calculated by counting per hill of bugs from each plot, on five randomly selected plants at 1 day before and 3, 7 and 14 days after imposing treatments. And the data recorded in the different treatments were subjected to statistical analysis after suitable transformation by following standard procedures of RBD experiment.

Results and Discussion

All the treatments were found to be significantly superior to control the population of gundhi bug.

The minimum populations of gundhi bug were recorded in (T_1) Imidacloprid (0.91 bug/hill) followed by (T_4) Thaimethoxam (1.22 bug/hill), (T_2) Triazophos (1.44 bug/hill), (T_3) Monocrotophos (1.77 bug/hill), (T_5) Acephate (2.06 bug/hill), (T_6) Carbaryl (2.57 bug/hill), (T_7) Malathion (2.84 bug/hill) and (T_0) Control (3.51 bug/hill). Imidacloprid 17.8% SL was found to be the best and it was at par with Thaimethoxam. The results of Imidacloprid 17.8% SL were supported by Chaudhary and Raghuraman (2014) (Table 1).

Table.1 Efficacy of certain chemical insecticides against gundhi bug (*Leptocorisa acuta*) during *kharif* 2016

Tr. No	Treatments	Population of gundhi bug/hill				
		Before spray	After spray			
		1 DBS	3rd Day	7th Day	14th Day	Mean
T_0	Control	3.96 (11.74)	3.73 (11.13)	3.66 (11.03)	3.13 10.18)	3.51 (10.79)
T_1	Imidacloprid	3.13 (10.18)	1.26 (6.43)	0.86 (5.28)	0.60 (4.40)	0.91 (5.42)
T_2	Triazophos	3.26 (10.38)	1.66 (7.36)	1.46 (6.93)	1.20 (6.22)	1.44 (6.84)
T_3	Monocrotophos	3.46 (10.51)	2.20 (8.50)	1.66 (7.36)	1.46 (6.93)	1.77 (7.62)
T_4	Thiamethoxam	3.17 (10.49)	1.53 (7.08)	1.20 (6.22)	0.93 (5.49)	1.22 (6.29)
T_5	Acephate	3.33 (10.55)	2.33 (8.75)	2.00 (8.08)	1.86 (7.83)	2.06 (8.22)
T_6	Carbaryl	3.41 (10.63)	3.00 (9.94)	2.60 (9.24)	2.13 (8.35)	2.57 (9.19)
T_7	Malathion	3.53 (10.77)	3.20 (10.27)	2.86 (9.72)	2.46 (9.02)	2.84 (9.68)
	F test	NS	S	S	S	S
CD (5%)		1.43	0.37	0.53	0.43	0.30
S.Ed.		0.47	0.12	0.18	0.14	0.10
CV %		7.63	2.44	3.82	3.37	2.18

Figures in parenthesis are arc sin transformed values. DBS –Day before spray

The most effective treatment was imidacloprid, Thaimethoxam, Traizophos and Monocrtophos (Girish *et al.*, 2015; Rath *et al.*, 2014; Ashokappa *et al.*, 2015 and Rath *et al.*, 2015).

Treatments

The spray revealed that Imidacloprid (17.8% SL) was found to be more effective than other Insecticides. Imidacloprid (17.8% SL) and Thaimethoxam (25% WG) were at par with each other. Traizophos (25%SP) and Monocrtophos (36% SL) were also at par with each other and Acephate (75% SP) and Carbaryl (50% SP) were also at par with each other.

References

Anonymous. Statistics of Agriculture, Volume 1, Agricultural and Horticultural Crops, Crop year 2009-2010, Ministry of Agriculture, Department of Economic Planning, Bureau of Statistics and Information Technology. 2011.

Ashokappa, *et al.*, 2015. Management of Rice Earhead Bug, *Leptocorisa oratorius* Fabricius (Hemiptera; Alydidae). *J. Exp.Zool. India*, 18(1): 177-179

Banerjee, P.K. and Chatterjee, P.B. 1982. Pests of hill rice in West Bangal, India. *International Rice Research Newsletter*. 7(4): 12-14.

Chaudhary, S. and Raghuraman, M. 2014. Impact of chitin synthesis inhibitor on brown planthopper (BPH), *Nilaparvata lugens* (Stal.) and gundhi bug, *Leptocorisa acuta* (Thunberg) in rice. *International Journal of Plant Protection*, 7(2): 369-372

Girish, V.P., and Balikai, R.A. 2015. Efficacy of Botanicals, Biopesticides and Insecticide Molecules against Ear Head Bug, *Leptocorisa acuta* (TH.) in Paddy and their effect on Yield. *Journal of Experimental Zoology India*, 18(2): 943-946.

Gupta, S.P., Prakash, A., Rao, J. and Gupta, A. 1993. Qualitative losses of paddy grain due to bugs in farmer's field of coastal Orissa. *Indian Journal of Entomology*. 55: 229-236

Israel, P. and Rao, Y.S. 1961. Incidences of *gundhi* bug and steps for control. Protocol Rice Research Works Management. CRRI, Cuttack. pp. 297-299.

Khanjani, M. Crop pests of Iran. Buali Sina University Press. 2006. Pp. 717.

Pathak S. and Khan J. 1994. Evaluation of significant relationship between the degree of infestation and yield attributes. *Indian Journal of Entomology*, 44(3): 452-457.

Rao, J. and Prakash, A. 1995. Biodegradation of paddy seed quality due to insects and mites and its control using botanicals. Final report ICAR/CRRI Ad-hoc Scheme (1992-95). 87 pp.

Rath, P.C., Chakraborty, K., Nandi, P. and Moitra, M.N. 2015. Field efficacy of some new insecticides against rice stem borer and Gundhi bug in irrigated rice ecology. *International Journal of Plant, Animal and Environmental Sciences* 5(2): 94-97.

Rath, P.C., Lenka, S., Mohapatra, S.D. and Jena, M. 2014. Field evaluation of selected insecticides against insect pests of wet season transplanted rice. *Indian Journal of Plant Protection* 51(4):324-326.

Tiwari, A., Pandey, J.P., Tripathi, K., Pandey, D., Pandey, B. and Shukla, N. 2014. Effectiveness of Insecticides and Biopesticides against Gundhi Bug on Rice Crop in District Rewa (M. P.), India. *International Journal of Scientific and Research Publications* 4(1): 1-4.

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