

# Effects of neem based pesticides on germination of cabbage seeds under laboratory condition

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## SUMMARY

A laboratory study was undertaken to study the effect of various neem based pesticides viz., Neemazal, Bioneem, Neemgold, Nimbicidine and Achook on germination of cabbage seeds at their three concentrations i.e. 1.0, 2.0, 3.0 per cent. Observations recorded after five days of sowing reveal that maximum germination was at 2% concentration of each pesticide followed by 1.0 and 3.0 per cent concentration under laboratory conditions. Among all the treatments, Nimbicidine was the best followed by Bioneem, Neemgold and Neemazal, whereas, Achook proved to be the worst.

**Key words :** Neem based pesticides, Cabbage seeds, Germination

The infestation of insect pests is one of the main constraints of low production of crucifer crops. Diamond back moth, *Plutella xylostella* Linn. is one of the major pest responsible for reduction in yield of Cole crops. The use of synthetic insecticides in crop pest control programmes around the world resulted in the disturbance of eco-balance. There is growing interest among the entomologists about the use of neem pesticide to control pests as they are comparatively safe to the environment (Panna and Parathi, 1995). Therefore, present study was undertaken to assess of different neem based pesticides for the management of *Plutella xylostella* Linn.

## MATERIALS AND METHODS

The seeds of local variety of cabbage was obtained from the vegetable farm of C.S. Azad University of Agriculture and Technology, Kanpur and local market, respectively. These seeds were fresh and free from diseases and pest infestation.

Laboratory tests were conducted with 50 seeds per treatment and in three replicates. These seeds were treated with different neem based pesticides and soaked for 24 hours in each concentration. In control, seeds were dipped in fresh water only. There were blotted dry and

set to germinate on germination papers and stored in loosely closed germination boxes in air condition room ( $22 \pm 2^\circ\text{C}$  55% R.H.). The number of germinating seeds were counted after 10 days of treatment.

## RESULTS AND DISCUSSION

The experimental data have been presented in Table 1. Which indicated that the effect of different neem based pesticides on cabbage seeds, three concentrations i.e. 1.0, 2.0 and 3.0 per cent were taken for each pesticides. The seeds thus soaked in different concentration were kept in germination moist papers and thereafter placed in germination boxes. The data recorded five days after the treatment revealed that maximum germination was observed at 1.00 per cent concentration of each pesticides followed by 1.0 and 3.0 per cent. Among all the treatments

**Table 1 : Total number of seeds germinated at different concentration under laboratory conditions**

Sr. No.	Treatments	No. of seeds tested	Concentration (%)			Mean
			1.00%	2.00%	3.00%	
1.	Nimbicidine	150	145	147	115	135.67
2.	Bioneem	150	135	138	114	129.00
3.	Neemgold	150	124	126	90	113.00
4.	Neemazal	150	118	119	82	106.33
5.	Achook	150	65	70	50	61.67
6.	Mean		117.40	120.00	90.20	109.20
7.	Control	150	Water Treatment			148.00
Source			S.E. (D)		C.D. (P = 0.05)	
Treatment			1.49		3.02	
Concentration			1.15		2.34	
Treatment x concentration			2.57		5.24	
Control v/s treatment			1.88		3.83	

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**Table 2 : Per cent germination of seeds by various neem based pesticides at different concentrations**

Sr. No.	Treatments	Concentration (%)			Mean
		1.00%	2.00%	3.00%	
1.	Nimbecidine	96.66	98.00	76.66	90.44
2.	Bioneem	90.00	92.00	76.00	86.00
3.	Neemgold	82.66	84.00	60.00	75.56
4.	Neemazal	78.66	79.33	54.66	70.89
5.	Achook	43.33	46.66	33.33	41.10
6.	Mean	78.26	79.99	60.13	72.79
7.	Control	Water treatment			98.66
Source		S.E. (D)		C.D. (P = 0.05)	
Treatment		0.88		1.79	
Concentration		0.68		1.39	
Treatment x concentration		1.52		3.10	
Control v/s treatment		1.11		2.27	

Nimbecidine proved to be the best resulting in 98.00 per cent (Table 2) germination of cabbage seeds followed by Bioneem and Neemgold where the percentage germination was 92.00 and 84.00, respectively at 2.0 per cent concentration. In case of Neemazal maximum germination was 79.33 per cent. Achook adversely affected the germination as it was only 33.33 per cent at 3.00% concentration and 46.66, 43.33 at the concentration of 2.0 and 1.0 per cent, respectively. The inhibition of

**Table 2 : Per cent germination inhibition of cabbage seeds by various neem based pesticides at different concentrations under laboratory conditions**

Sr. No.	Treatments	Concentration (%)			Mean
		1.00%	2.00%	3.00%	
1.	Nimbecidine	3.34	2.00	23.34	9.56
2.	Bioneem	10.00	8.00	24.00	14.00
3.	Neemgold	17.34	16.00	40.00	24.45
4.	Neemazal	21.34	20.67	45.34	29.12
5.	Achook	56.67	53.34	66.67	58.89
6.	Mean	21.74	20.00	39.87	27.20
7.	Control	Water treatment			1.34
Source		S.E. (D)		C.D. (P = 0.05)	
Treatment		1.43		2.90	
Concentration		1.10		2.25	
Treatment x concentration		2.47		5.03	
Control v/s treatment		1.80		3.68	

seed germination was high as 66.67 per cent at 3.00 per cent concentration (Table 3).

This clearly demonstrates that all the tested neem pesticides can safely be used for treating the seeds of these crops. The finding of present investigation is similar to Nageswari and Mishra (2005), and Singh and Yadav (2007).

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