International Journal on Recent Advancement in Biotechnology & Nanotechnology
Vol. 4, Issue 1 – 2021
ISSN: 2582-1571

Protectivity of Plant Extract against 3rd in Star Larva of Helicoverpa Armigera

Alok Kumar Pandey[1]
[1]*Department of Zoology D.A.V. P.G. College, Kanpur, U.P.*

Abstract

Most effective ar.Econeem was the least effective out of Nine plant extracts viz..Bioneem, Replin, Allium cepa, Achyranthusaspera, Jatrophacurcas, Neemazal. Nimbicidene Neemarin and Econeem were 20.8915, 11.4851, 2.8185, 2.0889, 1.4129, 1.23235, 1.2178, 10234 and 1.000 times protective respectively.

Keywords: Helicoverpa, Plant extra, Larva.

Introduction

In India majority of the population are vegetarian and vegetables play an important role in their diet. These are the cheapest source of vitamins and minerals. India is the second largest producer of vegetables next to China. Tomato (Lycopersiconesculentum mill) is most widely grown vegetable crop in India.

Material & Method

For preparing solutions of insecticides. commercial grades will obtained and the desired concentrations of biopesticides will prepared by following formula.

Concentration desired X Amount desired

Amount of insecticide = % a.i. (active ingredient) present the available insecticides. insecticides

Neem formulations will considered as 100% Neem oil.

Result & Discussion

It is evident from the table that Bioneem was the most effective and Econeem was the least effective out of Nine plant extracts viz. Bioneem, Replin, Allium cepa, Achyranthusaspera, Jatrophacurcas, Neemazal, Nimbicidene Neemarin and Econeem were 20.8915, 11.4851, 2.8185, 2.0889, 1.4129, 1.23235, 1.2178, 10234 and 1.000 times protective respectively.

© Eureka Journals 2021. All Rights Reserved.

International Journal on Recent Advancement in Biotechnology & Nanotechnology
Vol. 4, Issue 1 – 2021
ISSN: 2582-1571

Table 1.Order of protectivity of plant extractagainst 3rd in star larva of helicoverpaarmigera

Plant extract	Regression equation	ED_{50} of merit	Order protectivity	Relative
Bioneem	Y=0.73x+4.56	0.02183	I	20.8915
Repelin	Y=0.83x+4.56	0.0398	II	11.4851
Allium cepa	Y=.93+3.87	0.1622	III	2.8185
Achyranthus aspera	Y=0.77x+3.96	0.2188	IV	2.0889
Jatropha curcas	Y=1.0x+3.49	0.3236	V	1.4129
Neemazal	Y=0.58x+3.32	0.3454	VI	1.3235
Nimbicidene	Y-0.69x+3.38	0.3754	VII	1.2178
Neemarin	Y=2.72x+0.58	0.4467	VIII	1.0234
Econeem	Y=2.1x+1.36	0.4571	IX	1.0000

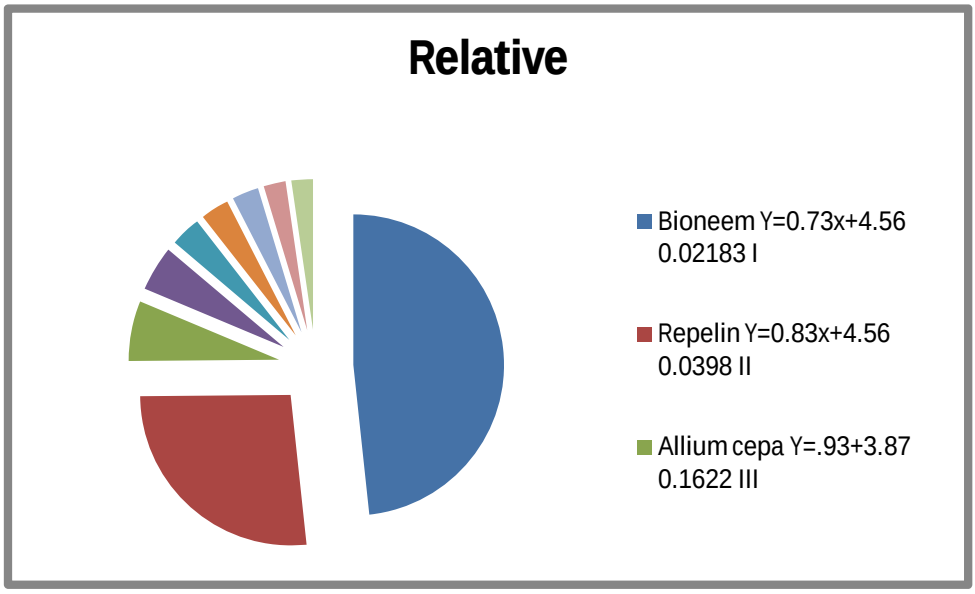

Figure 1.Order of protectivity of plant extractagainst 3rd in star larva of helicoverpaarmigera

The results obtained in present investigations seen to be in conformity with the results of recently investigated plant materials to the Agricultural pests. Sudhakaret. al. (1978) tested the anti feeding properties of ether extract of Acoruscalamus rhizomes and mechanical extract of crinum defixum, Kerreawal, Euphorbia royleanaBoised : Aloe barbadensis sand Lantana camara Linn. leavws showed very good Significant effect to Spodopteralitura. The AcorusCalamus was the best followed by Crinum defixum, Lantana camara Euphorbia roleana and Aloe barbadensis. Bioneemshowed maximum antifeeding effect to the pest in the experiment Similarresults were also obtained by Madhusudan and Gopalan (1979) when tested the Partheniumhisterophours, Parthienumroseus, Argimonemexicane andTribulusterrestris for their feeding deterrent activity against spodopteralituralarvae. The Partheniumhisterophorus was independently Superior to othertreatments in both reducing the leaf area consumed and there by increasing the percentage protection. The weight gain of the larvae feeding on castor leaves tested with extracts of P.histerophorus, P. roseus, A. mexicana, S. xanthocarpum and T.terrestris was 669.8, 764.1,

© Eureka Journals 2021. All Rights Reserved.

771.4, 906.7 and 1005.6 mg. respectively. While it was 1095.3 mg. in control.Meisner et al. (1981) conduced an experiment to test the effect of azadirachtin and solanin - 2 triterpenoids isolated from the seeds of neem (Azadirachtaindica A. Juss.) on the feeding response of SpodopteralittoralisBoised and EariasinsulanaBoised larvae. The experiment showed that Nimbicidene strongly Suppressed feeding inH.armigeralarve even at 0.001 per cent, where assolanin showed some antifeeding activity at 0.005 percentand above, larvae of E. insulana were deterred from feeding. Azadirachtinapplied on cotton leaves, deterred larvae of S.littoralis from feeding at all concentrations ranging between 0.001 per cent and 0.02 per cent. respectively. The Saussurealappa and some other botanical products were tested as antifeedants by Sandhu and Verma (1975) and found that the 2.0 per cent suspension of Saissurealappa (roots) was not highly effective to Chrotogonustrachypterus. The similar results are also found by Mahadevan- NR (2000) Shivprakasam-N (2000), Souza-Ap-De et al (2002). Bhatnagar, A.(1998), Broadley, R.H. (1984). Seasonal incidence and Parasitism of *Heliothis*Sp. (Lepidoptera :Pyralidae) larvae in South Queensland Sunflower, Diraviam, J. *et. al.* (1993), Lal, S.S. (1981), Mahto, Y. (1990), Mishra, B.A., *et. al.* (1992), M.M. H. Khan (2019). Effect of temperature and relative humidity on the population dynamics of brinjal and tomato infesting whitefly, Bemisiatabaci, Patel, C.C., and Koshiya, D.J. (1997), Pimpale, T.D. and Summanwar, A.S. (1983), Sekhon, B.S. and Singh, S. (1985). Effect of temperature, relative humidity and rainfall on the population build up of cotton jassid, Sethi, G.R., *et. al.* (1979), Singh, K.M. and Singh, R.N. (1977), Yumamura K, *et. al.* (2006) and Zhang S, *et. al.* (2014) also recorded.

References

1. Sandhu, G.S. and G.C. Verma, 1975. Studies on antifeeding effect of some indigenous plant materials against Chrotogonustrachypterus Blach. Indian jour. Pl.Prot. 3 920: 207-208.
2. Mahadevan- NR (2000) Azadirachtin to control tomato fruit borer. Insect Environment 3:4, 92.
3. Madhusudhan, M. and M. Gopalan. 1979. Influence of certain plant extracts on leafprotection starvation and defecation of Spodopteralitura. Workshop on "Futurologyon use of chemical in agriculture with particular reference to future trends in pestcontrol "p.21.
4. Sivaprakasam N. (2000) Management of fruit borer Helicover paarmigere on tomato Madras Agricultural Journal 85: 1, 68-69.
5. Souza- Ap- de; Vendramim- JD; de Souza-AP(2002). Ovicidal activity of aqueous extracts of meliaceae on the silver leaf whitefly for tomato scientia- Agricola 57:3, 403-406.
6. Sudhakar, T.R.N.D. Pandey and G.C. Tewari. Antifeeding properties of someindigenous plants against mustard Sawfly, Athaliaproximaklug. (Hymenoptera:Tenthredinidae). Indian Jour. Agric. Sci. 48 (1): 16-18.
7. Bhatnagar, A. and Saxena, R.R. (1998). Monitoring of *Helicoverpaarmigera* through light and pheromone traps and seasonal activity of their natural enemies at Bastar Plateau Zone. *Indian Annl. Pl. Prot. Sci.*, 6(2): 142-145.

© Eureka Journals 2021. All Rights Reserved.

8. Broadley, R.H. (1984). Seasonal incidence and Parasitism of *Heliothis* Sp. (Lepidoptera :Pyralidae) larvae in South Queensland Sunflower. *Journal of the Australian Entomological Society.* 23(2): 145-146.
9. Diraviam, J., Uthamasamy, S. (1993). Monitoring of whitefly, Bemisiatabaci (Genn.) on sunflower with yellow sticky traps. *J. Entomological Research*, 16(2): 163-162.
10. Lal, S.S. (1981). An ecological study of the whitefly, *Bemisiatabaci* Genn. population on cassava, *Manihotesulentacrantz. Pestology,* 5(1): 11-17.
11. Mahto, Y. (1990). A note on population dynamics of *Amrascabiguttulabiguttula*on sunflower, *Indian J. Ent.,* 52 (3): 506-507.
12. Mishra, B.A., Mandal, S.M.A. and Tunga, K. (1992). Seasonal activity of parasitoid of *Helicoverpaarmigera* Hubner in the eastern ghat high land zone of *Orissa. Orissa J. Agri. Res.* 5: 170-173.
13. M.M. H. Khan (2019). Effect of temperature and relative humidity on the population dynamics of brinjal and tomato infesting whitefly, Bemisiatabaci. Jahangirnagar University J. Biol. Sci. 8 (1): 83-86, 2019.
14. Patel, C.C., and Koshiya, D.J. (1997). Seasonal abundance of American boll worm, *Helicoverpaarmigera*on different crop at Junagarh (Gujarat). *Indian J. Ent.,* 59 (4): 396-401.
15. Pimpale, T.D. and Summanwar, A.S. (1983). Some observation on the seasonal dispersal of the whitefly *(Bemisiatabaci*Genn.) under Delhi conditions. *Pestology, 7*(6): 9-10.
16. Sekhon, B.S. and Singh, S. (1985). Effect of temperature, relative humidity and rainfall on the population build up of cotton jassid. *Indian I. Eco.,* 12(2): 293-298.
17. Sethi, G.R., Prasad, H. and Singh, K.M. (1979). Population build up of *Diacrisia oblique* Walker on sunflower at New Delhi. *Indian J. Ent.* 41 (1): 36-38.
18. Singh, K.M. and Singh, R.N. (1977). Succession of Insect pests in green gram and black gram under dry land conditions in Delhi. *Indian J. Ent.,* 39 (4): 365-370.
19. Yumamura K, Yokazawar M, Nishimori M, Ueda Y, Yokosuka T. How to analyse long-term insect population dynamics under climate change: 50 year data of three insect pests in paddy fields. Poplnulation Ecol 2006; 48:38-48.
20. Zhang S, Cao Z, Wang Q, Zhang F, Liu T-X. Exposing eggs to high temperatures affects the development, survival and reproduction of *Harmoniaaxyridis.* Journal of Thermal Biology 2014; 39(0): 40-44.

© Eureka Journals 2021. All Rights Reserved.