

NATURAL BIOPESTICIDE IN DISEASE MANAGEMENT OF ALLIUM CEPA

ARCHANA SRIVASTAVA,

Department of Botany
D.A.V (P.G.) College Dehradun

ABSTRACT

The term pesticide covers a wide range of compounds including insecticides, fungicides, herbicides, rodenticides, molluscicides, nematocides, plant growth regulators and others. Biopesticides include a broad array of microbial pesticides, biochemicals derived from micro-organisms and other natural sources, and processes involving the genetic modification of plants to express genes encoding insecticidal toxins. The use of biopesticides has emerged as promising alternative to chemical pesticides. .disease of allium are Seed and Seedling Diseases and Disorders Damping-Off, Onion Smut, Seedling Disorders, Foliage Diseases. Botrytis Leaf Blight, Downy Mildew, Purple Blotch, Root and Bulb Diseases Bacterial Diseases, Pink Root, White Rot, Fusarium Basal Rot, Neck Rot, Disorders the aim of present study is to find out the effect of different pesticides and bio-pesticides on diseases of allium plant. The present study thus suggests that though Dasparni, Neemcrude oil and Profenofos provided reasonably high benefit cost ratios, they were far below than other pesticides.

INTRODUCTION

Onion (*Allium cepa* L.) is an important vegetable crop in India. It is relished mostly as salad and Indian cuisine is incomplete without onion. India is the second largest onion producing country in the world with approximately 7.6 lakh ha area with an annual production of 12.20 lakh MT during 2009-10¹. The fungal pathogen of onion viz., *Alternaria porri*, *Fusarium oxysporium* and *Stemphylium vesicarium* were isolated from soil and infected onion leaves, by soil dilution and plate count method. A number of pathogens have been found responsible for the disease, of which *Alternaria porri*, *A. alternata* and *Stemphylium vesicarium* are the most common². The objective of the present study was to find the most efficient biopesticides and pesticides used either alone or in combination for the management

of the disease. There are various secondary benefits identified, ranging from fitter people to conserved biodiversity. Failure to control this pest timely and by effective means causes considerable damage and results in immense economic losses by remarkably reducing yield³. Thrips (*Thrips tabaci* Lindeman) is a regular and potential pest of onion causing considerable losses as high as 90 per cent in quality and yield⁴. Pesticides in effected blood samples, have HCH, Aldrin, DDT, Monocrotophos, Endosulfan, Phosphamidon, Chlorpyrifos and Malathion⁵. Cancer cases are rampant in the villages of Punjab due to prolonged exposure of pesticides⁶. Vermicomposting technology is the decomposition of organic waste into nutrient rich vermicasts through the combined action of earthworms and microorganisms by which the earthworms also increase in number, size and weight⁷.

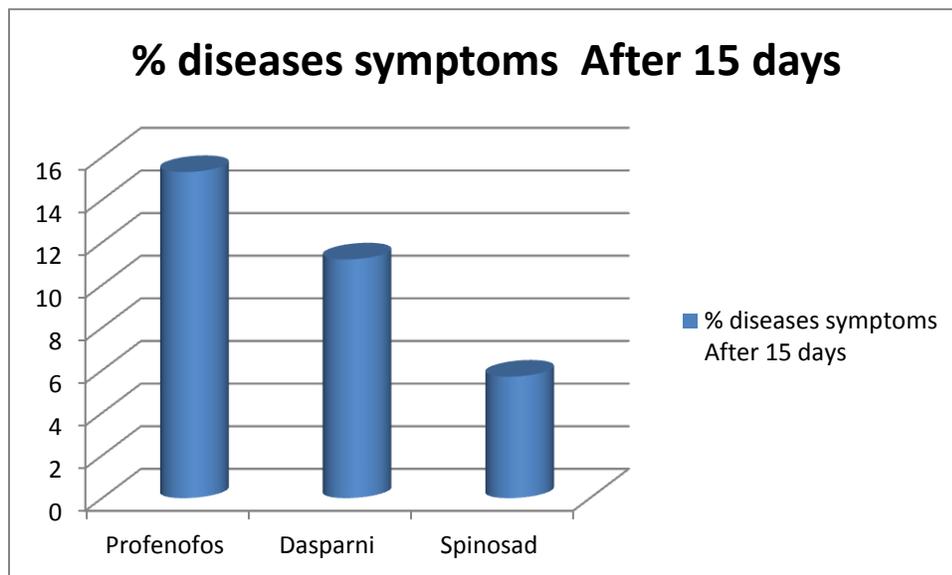
MATERIALS AND METHODS

Seedlings of onion sown in pots The treatments evaluated were NSKE @ 4.0%, Neem seed powder 4.0%,Fipronil 1.0 ml/lit, Imidacloprid 0.2ml/lit. Spinosad @0.9. ml/lit. with an unsprayed plot serving as control. Identified botanical preparations and insecticides were applied at appearance of the diseases on thirty days after transplanting and subsequently two applications were made using high

volume sprayer at 15 days interval. All other agronomical practices were performed as per need in all the treatments. The crop was harvested after attaining the maturity. The total number of disease symptoms per plant was counted visually from 5 randomly after few days after each spray and expressed the mean as number per plant.

TABLE :OBSERVATION OF DISEASES SYMPTOMS AFTER TREATMENT

Treatment	% diseases symptoms After 15 days	% diseases symptoms After 30 days	% diseases symptoms control
Neemcrude oil	15.3	7.4	17.4
Profenofos	11.2	4.6	12.9
Dasparni	5.7	6.2	10.4
Spinosad	8.1	4.1	12.5



RESULT AND DISCUSSION

Farmers by just placing the bulbs of onion or garlic in different insecticides and fertilizers can record the effect of suspected substance/liquid on crop growth. He can select the proper and cheapest pesticide or fertilizer for crop growth. Thus the knowledge that is with scientist can be utilized by farmers and public. Based on above findings, the present study thus suggests that though Dasparni, Neemcrude oil and Profenofos provided reasonably high benefit cost ratios, they were far below than other pesticides. Hence before making recommendation of these products, some more refinement is needed and they can be explored for including in spray schedule of insecticides so that number of insecticide applications can be brought down.

CONCLUSION

Chemical pest control agents are extensively used in all countries of the world but they are regarded as ecologically unacceptable. Therefore, there is an increased social pressure to replace them gradually with biopesticides which are safe to humans and non-target organisms. The present study thus suggests that though Dasparni, Neemcrude oil and Profenofos provided reasonably high benefit cost ratios, they were far below than other pesticides.

REFERENCES

- ✚ Anonymous. 2010. Annual Report: National Horticultural Research and Development Foundation pp. 48.
- ✚ Cova, J., & Rodriguez, D. (2003). Fungi associated with leaf blight of onion (*Allium cepa* L.) in Lara State, Venezuela. *Bioagro*, 15, 157-163.
- ✚ .Juan Anciso, (2002). *Onion World*, 18(3): 10.
- ✚ .Sudharma, K., and Nair, G.M. (1999). Assessment of loss caused by *Polyphagotarsonemus latus* (Banks) on Chilli. *Entomon* 24: (1) 1997-98.
- ✚ Mathur SC. Future of Indian pesticides industry in next millennium. *Pesticide Information*. 2010; 24 (4):9–23.
- ✚ .Manyuchi, M.M., Phiri, A., Chirinda, N., Muredzi, P., Govha, J., Sengudzwa, T., 2012. Vermicomposting of waste corn pulp blended with cow dung manure using *Eisenia fetida*. *World Acad. Sci. Engg. Technol.* 68, 1306-1309.
- ✚ . Quaik, S., Embrandiri, A., Rupani, P.F., Singh, R.P., Ibrahim, M.H., 2012. Effect of vermiwash and vermicomposting leachate in hydroponics culture of Indian Borage (*Plectranthus ambionicus*) plantlets. UMT 11 th International Annual Symposium on Sustainability Science and Management. pp.210-214.

Copyright © 2015, Archana Srivastava. This is an open access refereed article distributed under the creative common attribution license which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.