Short Note

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Impact of Organic Manures on the Incidence of Insect Pests of Crops

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The low nitrogen content in plants due to organic manures leads to increased phenols, tannins and lignins that make the leaf toughness and production of more cell wall related structural compounds which are not desirable for herbivores. The organic manures create a partial nitrogen stress up to certain period without any negative effects on crop growth and thus induce resistance through intrinsic production of defense compounds, which deter the pest attack.

Introduction

Any organic materials of animal or plant origin, added to the soil to improve the physical condition of soil and which supply one or more plant nutrients to the soil is known as organic manures. Pest control through host plant nutrition is one of the ways of pest management. In recent days, information on effect of host nutrition on pest intensity is necessary to develop sound IPM system. The organic manures create a partial nitrogen stress up to certain period without any negative effects on crop growth and thus induce resistance through intrinsic production of defense compounds, which deter the pest attack. The low nitrogen content in plants due to organic manures leads to increased phenols, tannins and lignins that make the leaf toughness and production of more cell wall related structural compounds which are not desirable for herbivores.

Impact of Different Organic Manures on Insect Pests

- The organic manures create a partial nitrogen stress up to certain period without any negative effects on crop growth and thus induced resistance through intrinsic production of defense compounds, which deter the pest attack.
- The low nitrogen content in plants due to organic manures leads to increased phenols, tannins and lignins that make the leaf toughness and production of more cell wall related structural compounds which are not desirable for insect pests.
- The organic manures as a source of growth stimulating substance, such as indole acetic acid, humic acid and fulvic acid.

- Plant resistant to insect pests and diseases is strictly related to optimal physical, chemical and mainly biological characteristics of soils. The soil with high organic matter and active soil biological activity generally good soil fertility as well as complex food webs and beneficial organisms that prevent infection.
- The organic crops have been shown to be more tolerant as well as resistant to insect attacks and organic rice is reported to have thicker cell wall and lower levels of free amino acid than conventional rice.

NPK Content in Different Organic Manures

Manure	**Nitrogen (%)**	**P_2O_5 (%)**	**K_2O (%)**
Sewage	15-30	4-6	10-20
Dried blood	10-12	1-2.6	0.8
Bone meal(Raw)	3.0	20.0	-
Bone meal (steamed)	-	22.0	-
Meat meal	10.5	2.5	0.5
Bone ash	-	15.5-16.0	-
Fish meal	4-10	3-9	0.3-1.5
Bird guano	7-8	11-14	2-3
Activated sludge	5-6	3-3.5	0.5-0.7
Settled sludge	1.5-4.5	0.7-4.0	0.3-0.6
Cotton mill flue dust	1.5-2.0	0.5-0.6	0.6-0.8
Night soil	1.2-1.5	0.8	0.5
Human urine	1.0-1.2	0.1-0.2	0.2-0.3
Town compost	1.5-2.0	1	1.5

Conclusion

The phytophagous insects are most sensitive to nutritional changes in their host plants. These changes are accomplished mainly through fertilizers. Proper combination of organic and inorganic fertilizers minimizes the problem of insect pests to some extent without much affecting soil fauna. These practices also improve the soil condition and enhance the uptake of nutrients and over a long period this strategy certainly is helpful to the farmers and compatible with IPM programmes.