SUMMARY & CONCLUSION
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Partially purified fractions of select nine plants were tested against various stages of the brinjal pest *Henosepilachna vigintiopunctata* F. The plants selected for the study were commonly available with moderate to high toxic properties.

The fractions were tested for their insecticidal activity against four instars of grubs and adults. The fractions of *S. nux vomica* and *C. tiglium* showed 100% mortality against the first instar larva. The fractions of *P. histerophorus* showed least toxic effects on various stages of the test insect. Petroleum ether fraction of *S. nux vomica* also showed less toxic effects. The fractions of the rest of the plants showed moderate toxicity. LC50 values were arrived for the fractions except for PE fraction of *S. nux vomica* (due to wax content in the seeds). The data were analyzed to test the significance using one way ANOVA.

When the fractions were applied topically, they showed less toxic effects in comparison with oral administration in most cases. The MeOH fractions were more toxic than the rest of other fractions. The fractions of *R. communis* did not show any effect on the test insect. LC50 values were also calculated using these fractions. The plants could be arranged in the following order based on their toxicity.

Antifeedant effects of the fractions were tested by no-choice disc method. MeOH fractions of *S. nux vomica* showed maximum feeding inhibition at 0.1% concentration. This was the highest in comparison with the fractions of their plants. In most of the instances, the adults were deterred more, when compared with the larval instars. While this effect was least observed in *P. histerophorus*, maximum impact could be noticed in *nux vomica*.

The eggs were exposed to the fractions of select plants. Ovicidal effects of the fractions were calculated. MeOH fraction of *S. nux vomica* showed 50.96 percent ovicidal effect at 0.1 percent concentration. In all the cases there was an increasing trend of the effects with the raise of concentration. EC50 values on eggs were also calculated. MeOH fraction has exhibited the lowest EC50 value, followed by the MeOH fraction of *S. nux vomica*.

The fractions were also tested to find out their oviposition deterrence activity. The MeOH fractions of *C. tiglium* and *S. nux vomica* showed high activity. High degree of oviposition deterrence up to 98% was noticed with MeOH fraction of *S. nux vomica*, at 0.1% concentration. The oviposition indices were also calculated and it ranged from 0.01 to 0.97.

In the present condition there is an increased threat to the environment due to the usage of various toxic compounds used in the name of pesticides in order to increase food production. UNO organized two major “Earth Summits” first in 1992 and second in 2002, to warn the global community about the environmental imbalance due to toxic compounds arising out of pesticides. Crafted to that, these toxic compounds are bound to
generate an unhealthy environment for the forthcoming generations. In this context our only recourse without an environmental degradation is from plant kingdom. Many plants have been reported to have excellent antagonistic property against a wide spectrum of insects. This resource needs to be properly quantified and used.

The present study shows that there is a better scope for pest control using specific compounds of plant origin. The minimum concentration and high toxicity shown by certain plants in this work is beneficial to the farmers by simple spray to control the *Henosepilachna* spp. These results also can be extrapolated by commercial enterprises in the form of various products. In the present situation the results obtained in this work is the most significant one as it highlights some probability of biological active compounds against insects without much alteration to environment.

**Suggestions for further study:**

The results throw light on the bio-activity of select plant species against *Henosepilachna vigintioctopunctata*, a serious pest of brinjal and some cucurbits. Taking clues from this study, ecologically friendly bio-pesticides against this pest can be developed after proper formulation and field study. Further study is required to elucidate the active principles for bioactivity in the crude fractions to understand the bio-chemical basis of the activity.

The following suggestions may be helpful for further studies in this area for successful use of select plant compounds in natural conditions.

1. Proper formulation of fractions of select plants in pest control.
2. Efficacy of fractions used in the study under natural conditions.
3. Effects of the fractions on natural enemies and non-target species.
4. Persistence of the fractions on plant surface for their effective activity.
5. Study resistance development by the pest against the plant fractions.