

Use of *Clerodendrum*, *Aristolochia*, *Azadirachta* and *Enicostemma* to control cotton pest

Innovator: Jadubhai Kurjibhai Savaliya

Age: 70 years

Education: 4th Std

Address: Bhavnagar, Gujarat

Summary of Innovation

Farmer Shri Jadubhai Savaliya from Bhavnagar district has developed a formulation that he claims to be highly effective in the control of insect-pest attack and also disease infestation in the cotton crop. Formulation comprises of leaves of *Arni* (*Clerodendrum phlomidis*), *kidimari* (*Aristolochia bracteata*), *mamejavo* (*Enicostemma littorale*) and *neem* (*Azadirachta indica*). The leaves are collected from the forest or neighborhood and juice is extracted from extract obtained after grinding of the leaves. Juice obtained is filtered through fine cloth and used at a concentration of 200- 500 ml of this filtrate in a 15-liter sprayer pump. About 30 liters of the filtrate is required for effective control of pest and disease in one vigha of land. Farmer claims that control up to 90 per cent is achieved over the pest and disease following this practice.

Prior Art Search

1. Arni (*Clerodendrum phlomidis*):

Plant of *arni* is 3 – 6 feet in height and has long and broad leaves. Kautilya's *Arthashastra* was probably the oldest document, which described the use of organic materials to control the crop disorders. "Sprinkling a decoction made out of *panchamula* (roots of *Clerodendrum phlomidis*, *Aegle marmelos*, *Stereospermum suaveolens*, *Gmelina arborea* and *Oroxylum indicum*) for *Kapha* type of disorders".

(http://www.infinityfoundation.com/mandala/t_es/t_es_goyal_crop.htm)

2. Kidimari (*Aristolochia bracteata*):

The plant of *kidimari* is small and the leaves are round in shape. *A. grandiflora* L. and *A. bracteata* L. are used as insect repellent against flies and maggots (Secoy and Smith, 1983), and against mosquitoes respectively.

(<http://www.academicjournals.org/ajb/PDF/pdf2006/16May/Jbilou%20et%20al.pdf>)

Secoy DM and Smith EA (1983). Use of plants in control of agricultural and Domestic pests. *Econ. Bot.* 37: 28-57.

3. Mamejavo (*Enicostemma littorale*):

The plant is used for human medication: headache, diabetes and intermittent fever but, in literature search no report could be found on potential use of *Enicostemma littorale* in plant protection.

4. Neem (*Azadirachta indica*):

Neem has been very commonly used by all for its pesticidal / insecticidal properties.

"The neem leaves, oils and products therefrom are used as medicine, pesticide, fertiliser, diabetic food, soap, tooth paste, animal feed and even as a contraceptive. Neem is the most important among all biopesticides for controlling pests, nematodes (reducing various diseases). This pesticide does not leave any residue on the crop like other chemical pesticides and therefore, is preferred. The efficiency of neem pesticides can be increased by improving by various methods like crop rotation, sanitation, deep ploughing, soil solarization, mixed

cropping, exploiting the source of resistance and the improving quality of neem seed etc. Neem pesticide are thus a potential alternative to chemical based pesticides and their use can avoid the dumping- off of thousands of tonnes of agro chemical on earth every year and will thus give us a pesticide residue free crop and safe environment.”

<http://www.nrdocindia.com/pages/neempest.htm>

Final comments

***Enicostemma littorale* is a potent anti diabetic plant but its role in pest control is not reported.** The other three plants viz. Neem, *Aristolochia bracteata* and *Clerodendrum phlomidis* are well known for having pesticide properties.

Patent PAS

No patent has been granted at USPTO for insecticidal / pesticidal/ toxic properties of *Enicostemma littorale* , *Aristolochia bracteata* and *Clerodendrum phlomidis* on insect-pest.

RAC Comments

- On farm validation of the practice should be carried out in farmers field and also with other techniques currently in use for treating seeds for early germination.
- Collect the views of other farmers who have used the same practice.

Action taken:

- Farmer has been contacted for providing us the details of other farmers in the region who have tried the same practice.
- The details of the practice have been sent to SRISTI-SADHAV validation trials.
- Meeting with the Head, Dept. of Entomology GAU for formal validation trials had been organized and they have proposed to help in the validation.
- Meeting with Dr. Trivedi NCIPM, New Delhi for screening of the herb for its insecticidal property has been done.

Feedback:

- The farmer has reported that he has not been using the practice since 5 years as now he is growing Bt Cotton and few plants used in the formulation are not easily available in the region.
- As most of the farmers in the region are growing Bt cotton thus nobody at present is using this practice for pest control.
- The validation trials will start shortly in GAU, Dantiwada.