



## BIOCONTROL UNIT



❖ **Year of establishment: 1997**

❖ **Introduction:**

Biological control is one of the integral components of the IPM which involves the use of any living organism and its by product to contain other living organism. Biological control comprises of natural enemies (Predators and Parasitoids), and the disease causing microbes in insect pests *Viz.*, Bacteria, Fungi, Viruses and Nematodes and their by products to regulate the insect pest population below economic threshold level.

Despite the promising impacts of biopesticides, the Indian biopesticide industry is growing at a very slow pace. The biopesticides accounted for approximately 0.2% during 2000 of the total global pesticides market and it increased to 4.5% by 2010. In India, biopesticide production is currently dominated by antagonistic fungi and bacteria such as *Trichoderma* spp. and *Pseudomonas fluorescens*. To contain the insect pests many biocontrol agents are effective and they need to be explored and native biocontrol agents are highly effective in suppressing the insect pests.

Biocontrol Unit was established at University of Agricultural Sciences, Raichur during 1997 and it is well supported by the Indian Council of Agricultural Research, New Delhi through All India Coordinated Research Project on Biocontrol.

#### ❖ Aim and Objectives:

Aim of the Biocontrol unit is to identify the potential native isolates of biocontrol agents, their characterization and development of mass production to cater the needs of the farmers with following objectives.

1. Collection and Identification of native biocontrol agents of Kalyana Karnataka.
2. To take up the large scale production of potential biocontrol agents
3. To supply quality biopesticides to the farmers of Kalyana Karnataka
4. To train the rural youths of Kalyana Karnataka on the production of biocontrol agents
5. To create awareness on the use of biocontrol agents

#### ❖ Infrastructure

- a) Mass production units for Entomopathogenic fungi
- b) Mass production units for Tricho card production
- c) Insect molecular laboratory
- d) Training Hall

#### ❖ Faculty Information

1.	Name	:	Dr. Arunkumar Hosamani
2.	Designation and address	:	Professor of Entomology Bio control Unit, MARS, UAS, Raichur
<b>Supporting Staff</b>			
1.	Name	:	Mr. Ramesh Lachamanna Sr. Field Assistant



**Fig. 1. Production of Entomopathogenic fungi, *Metarhizium anisopliae***



**Fig. 2. Production of Entomopathogenic fungi, *Beauveria bassiana***



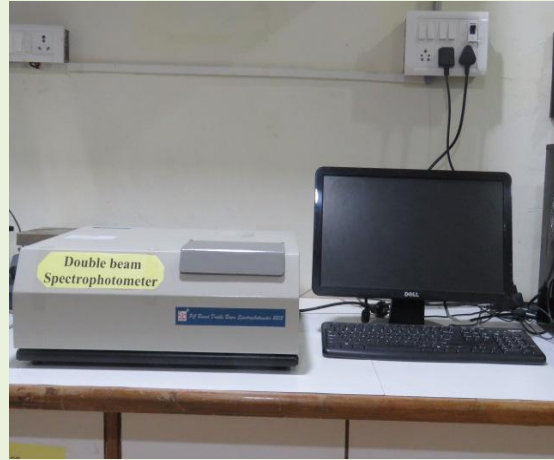
**Fig. 3. Production units of *Corcyra* rearing for Tricho card production**

## Insect molecular laboratory

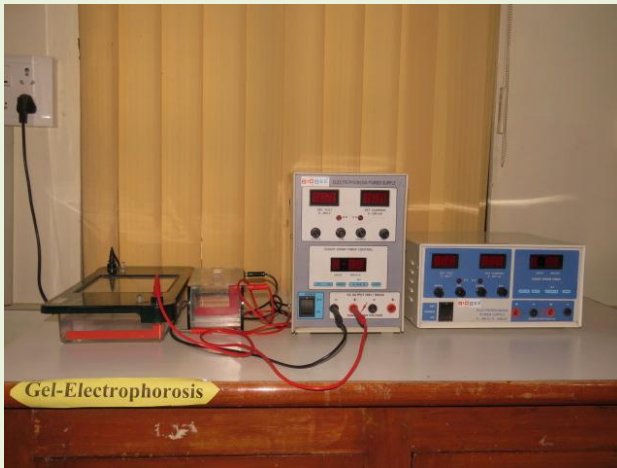
### Gel Documentation System



### Double Beam Spectrophotometer



### Gel Electrophoresis



### PCR



### Training Hall



## ❖Activities of Biocontrol Unit

### 1.Research

- ✓ Refining mass production technologies of biological control agents
- ✓ Developed mass production techniques for biocontrol agents like *Beauveria bassiana*, *Metarhizium anisopliae*, *Lecanicilium lecanii* and *Nomuraea rileyi*
- ✓ Developed mass production techniques for rearing of different species of *Trichogramma*
- ✓ Studies on white grub complex in major crops of Kalyan Karnataka and identification of potential biocontrol agents
- ✓ Studies on compatibility of chemical insecticides with biocontrol agents like *Beauveria bassiana*, *Metarhizium anisopliae*, *Lecanicilium lecanii* and *Nomuraea rileyi*.
- ✓ Studies on *Trichogrammatoidea bactrae* Nagaraja (Hymenoptera: Trichogrammatidae) on cotton Bollworms in particular *Pectinophora gossypiella* (Saunders)

### 2.Education

- ✓Teaching and guiding PG students on various aspects of biological control
- ✓Evaluation of egg parasitoids *Trichogramma pretiosum* and *Telenomus remus* against Fall army worm in maize
- ✓*In vitro* studies on compatibility of *Metarhizium anisopliae* with selected insecticides, acaricides, herbicides, nutrients and botanicals
- ✓Isolation and molecular characterisation of Entomopathogenic fungi *Metarhizium anisopliae* (Metchinikoff) and their efficacy studies against *Holotrichia serreta* (Fabricius) in North Eastern Karnataka

### 3.Extension

- ✓Transfer of technologies on biological control
- ✓Educating farmers as well as extension workers about the bio control agents
- ✓Organizing periodical training, publishing popular articles, leaflets, folders, T.V and radio talks on biological control

## ❖Achievements

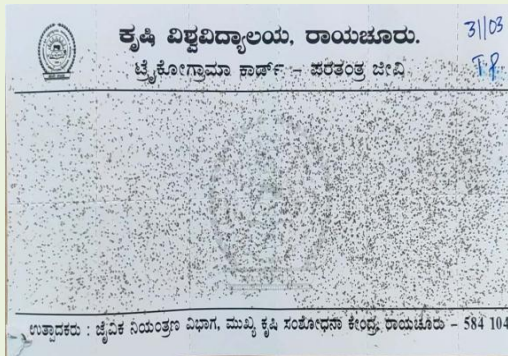
- 1.Successful production of Entomopathogens Viz., *Beauveria bassiana*, *Metarhizium anisopliae*, *Lecanicilium lecanii* and *Nomuraea rileyi*

2. Successful production of Trichogramma species like *T. chilonis*, *T. japonicum*, *T. pretiosum* and *T. bactrae* along with laboratory host *Corcyra cephalonica*
3. Use of *Metarhizium anisopliae* against white grub has given encouraging results in various crops like sugarcane and ground nut and has been included in Package of practices of UAS, Raichur.
4. NBAIR strain of HaNPV was included in UAS, Raichur Package of Practice for the management of *Helicoverpa armigera* in chick pea ecosystem.
5. Entomopathogenic Bacteria *Bt* (NBAIR Bt G4) was added in package of practice of practice of UAS, Raichur.

❖ **Available biocontrol agents**

Sl. No	Products	Price (in Rs)
1	Trchocard	20.00/ card
2	<i>Micromus igorotus</i>	50.00/100 pupae
3	<i>Cryptolaemus montrouzieri</i>	50.00/ 100 beetles
4	<i>Metarhizium anisopliae</i>	150.00/kg
5	<i>Beauveria bassiana</i>	150.00/kg
6	<i>Lecanicilium lecani</i>	150.00/kg
7	<i>Metarhizium rileyi</i>	150.00/kg
8	Vermiwash	100.00/lit
9	Vermicompost	5000/ton

## ❖ Biocontrol products



## Contact information



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