

W. E. D. C. O. M. E

BIO – PESTICIDE LAB



PI & Incharge - Dr. Anil Kumar Vyas (Asstt. Prof.)

Department of Entomology

**RAJASTHAN COLLEGE OF AGRICULTURE, UDAIPUR
MAHARANA PRATAP UNIVERSITY OF AGRICULTURE
AND TECHNOLOGY**

OBJECTIVES:

- To established the microbial bio-pesticides production unit and supply to govt. agencies, universities NGOs, farmers and different agencies and stock holders.
- To develop mass awareness among farmers about the use of microbial bio-pesticide through training.
- To impart training to the students of B.Sc. Ag. Final year on the production and use of bio-pesticides.
- T provide infrastructure facilities to PG students and scientist to conduct research on various aspects of bio-pesticides for the benefit of societies.

1 Modified PDA Triton X-100 medium (Budg & Whipps, 1991)

- Composition:
 - (1) Peeled potatoes= 200gm,
 - (2) Dextrose= 20gm
- (3) Agar agar= 20
- (4) Distilled water = 1000 ml
- Ph. = 7.0
- (To add after autoclave): Triton X-100= 2ml/lit
- Chloramphenicol= 60ppm

2. Modified TSM (Askew and Laing, 1993)

- Composition** Ingredients Gms / Litre
- $\text{Mg So}_4 \cdot 7 \text{ H}_2\text{o} = 0.2 \text{ g}$
- $\text{K}_2 \text{ HPO}_4 = 0.9 \text{ g}$
- $\text{Kcl} = 0.15 \text{ g}$
- $\text{NH}_4 \text{ NO}_3 = 3.0 \text{ g}$
- PCNB = 0.2 g
- Captan = 0.2 g
- Propamocarb or Metalaxyl = 1.2 ml or 1.6 g
- Rose Bengal = 0.15 g
- Chloromphenicol = 0.25 g
- Distilled Water = 1 lt.

3. Rose Bengal Agar Trichoderma selective Media

- Composition** Ingredients Gms / Litre
- Magnesium sulphate heptahydrate = 0.200
- Dipotassium hydrogen phosphate= 0.900
- Ammonium nitrate = 1.000
- Potassium chloride = 0.150
- Glucose = 3.00
- Rose Bengal= 0.150
- Agar- Agar = 20.00
- Distilled water= 1000 ml
- Ph.=7.0±2
- Chloramphenicol= 60ppm (1ml) at the time of pouring in plates

PRODUCTION UNIT VISITORS



Production of talc based *Trichoderma viride* formulation



1



2



3



4

6

Counting the colony fungal units (c.f.u) of *T. viride* in the talc formulation on digital colony counter



Interior View of *T. viride* formulation Production of Talc based Laboratory



MASS PRODUCTION OF *TRICHODERMA VIRIDE*









F.No. 1848-B/F/9(3b)/2013-CIR.II
Government of India
Ministry of Agriculture

(Department of Agriculture & Cooperation)
DIRECTORATE OF PLANT PROTECTION, QUARANTINE & STORAGE
CENTRAL INSECTICIDES BOARD & REGISTRATION COMMITTEE
N.I.IV, FARIDABAD-121 001

CERTIFICATE OF REGISTRATION OF INSECTICIDES UNDER SECTION 9(3b) OF THE INSECTICIDES ACT, 1968.

Certified that the Bio-Fungicide Trichoderma viride 1.5% WP (CFU count 2×10^6 / gm. min.) for indigenous manufacture has been registered under section 9(3b) of the Act in the name of the Person/Undertaking whose particulars are specified below:-

1. Name of the person/Undertaking : M/s Bio-Pesticides Laboratory,
Department of Entomology, Directorate of Research,
Maharana Pratap University of Agriculture and
Technology (MPUA&T), Udaipur- 313 001 (Rajasthan).
2. Address of Factory : Department of Entomology, Directorate of Research,
Maharana Pratap University of Agriculture and
Technology (MPUA&T), Udaipur- 313 001 (Rajasthan).
3. Registration Number : CIR-1691/2015(354)-*Trichoderma viride* (WP)-371.
4. Name of the Insecticide : Trichoderma viride 1.5% WP
Strain No. IIHR-TV-5, Accession No. ITCC 6889.

5. **CONDITIONS:**

- i. The Certificate is valid up to 14/7/2017
- ii. The registration is subject to the strict compliance of various provisions of the insecticides Act, 1968 as amended from time to time and Rules, bye-laws framed and notifications issued there under and as amended from time to time.
- iii. The Registration is further subject to such conditions which may be varied and Specified from time to time by the Registration Committee under section 9(3C).
- iv. Non-compliance of the conditions set out herein before and hereinafter will entail action under section 17 of the Act.
- v. The technical/formulated material should have the composition as indicated below:-

Chemical Composition:

<i>Trichoderma viride</i>	:	1.5% w/w
(CFU count: 2×10^6 / gram min.)	:	
Carboxy Methyl Cellulose	:	1.5% w/w
Talc Powder	:	97.0% w/w

Total: 100.0% w/w

Contd...2.

Strain No. IIHR-TV-5. Accession No. ITCC 6889



FORM-VI
JOINT DIRECTOR OF AGRICULTURE (PLANT PROTECTION)
 Directorate of Agriculture, Pant KrishiBhawan, Jaipur (Raj.)
LICENCE TO MANUFACTURE INSECTICIDES
 (See sub0rule (3) of the rule-9)

01 : License Number – F4(L-148) ML/Tech.I/PP/2017 Issue Date 04-07-2017

License to manufacture the following insecticide(s) on the premises situated at Department of Entomology, Directorate of Research, Maharana Pratap University of Agriculture and Technilogy (MPUA&T), Udaipur-313001 is granted to M/s Bio Pesticides Laboratory as specified hereunder :-

S.No	Name of Product	CIB & RC Registration No.	Valid upto
1	Trichoderma Viride 1.5% WP	CIR-1691/2015(354)- Trichoderma Viride (WP)-371	14/07/2017

02 : The insecticide(s) shall be manufactured under the direction and supervision of the following expert staff:

1. Dr. Anil Kumar Vyas S/o Late. Shri Tej Raj Vyas, B.Sc. Ag. (Ph.D. Entomo.)

03 : The license is subject to such condition as may be specified in the rules for the time being in force under the insecticide Act, 1968 as well as the condition stated below.

CONDITIONS

1. This license shall be kept in the premises for which the license is being issued and shall be produced for inspection as and when required by an Insecticide Inspector, licensing officer or any other officer authorized by the Government in this regard.
2. Any change in the name of the expert staff, named in the license shall forthwith be reported to the licensing officers.
3. The Licensee shall scrupulously comply with each and every condition of registration of the insecticides failing which of the insecticide is liable to be cancelled.
4. The licensee shall comply with the provision of the Insecticides Act, 1968, and the rules made thereunder for the time being in force.
5. The license also authorize the storage and stocking of insecticide(s) manufactured at the licensed premises, in the factory premises for sale by way of wholesale dealing by the licensee.
6. Any other condition(s) may be specified by the licensing officer.

4-7-17
 Director
 Plant Protection
 Jaipur

4-7-17
 Licensing Officer
 Director Agriculture
 Plant Protection,
 Jaipur

**जैविक फफूंद नाशक ट्राइकोडर्मा वीरीडी-
जैविक कृषि में रोग नियंत्रण हेतु अजैविक (रसायनिक फफूंद नाशक) का विकल्प**

जैव फफूंद नाशी ट्राइकोडर्मा वीरीडी- उत्पाद के गुण	उपयोग विधियां	विशेष जानकारी:
<ul style="list-style-type: none"> ➤ फसलों में मृदा जनित एवं बीज जनित रोगों की रोकथाम ➤ पर्यावरण के प्रति सुरक्षित कम लागत में अधिक उत्पादन ➤ मृदा स्वास्थ्य एवं वृद्धि के लिए बहु उपयोगी ➤ बीज अंकुरण एवं फसल में पोषक तत्व आपूर्ति हेतु लाभकारी 	<ul style="list-style-type: none"> ➤ बीज उपचार ➤ भूमि उपचार ➤ प्रति रोपित बागवानी फसलों में जड़ उपचार 	<ul style="list-style-type: none"> ➤ ट्राइकोडर्मा कल्चर को धूप व गर्मी से बचा कर रखें तथा अंतिम तिथि से पूर्व प्रयोग में लेवे ➤ ट्राइकोडर्मा कल्चर को राइजोबियम एजोटोबेक्टर तथा पी. एस. बी. जीवाणु खाद के साथ उपचारित किया जा सकता है
उत्पादक	अधिक जानकारी हेतु संपर्क करें	
<p style="text-align: center;">जैव कीटनाशक प्रयोगशाला (कीट विज्ञान विभाग, रा. कृ. म. वी., उदयपुर) अनुसंधान निदेशालय, महाराणा प्रताप कृषि एवं प्रौद्योगिकी विश्वविद्यालय, उदयपुर</p>	<p style="text-align: center;">डॉ. अनिल व्यास मो. न. 9414167622 डॉ. आर एन बुनकर मो. न. 9414926892 फोन नंबर 0294 241 8866 ,</p>	

जैविक जैविक कृषि में रोग बचाव हेतु
जैव फफूंद *ट्राइकोडरमा विरिडी*
निरूपण प्रयोग में लाएं एवं उत्पादन
बढ़ाए

उत्पादक

जैव कीटनाशक प्रयोगशाला
(कीट विज्ञान विभाग, रा. कृ. म. वी., उदयपुर)
अनुसंधान निदेशालय,
महाराणा प्रताप कृषि एवं प्रौद्योगिकी विश्वविद्यालय, उदयपुर

फसलों में जैव फफूंद नाशक
ट्राइकोडरमा द्वारा बीज एवं मृदा
उपचार अपनाएं एवं रोगों को दूर
भगाएं

अधिक जानकारी हेतु संपर्क करें

डॉ. अनिल व्यास

मो. न. 9414167622

डॉ. आर एन बुनकर

मो. न. 9414926892

फोन नंबर 0294 241 8866

जैविक फफूंद नाशक ट्राइकोडर्मा वीरीडी- उपयोग विधियां

- बीज उपचार**
- फसल के बीजों को सर्वप्रथम एक बर्तन में लेकर पानी के छींटे देवे ट्राइकोडरमा कल्चर की 6 से 8 ग्राम प्रति किलो बीज की दर से बीजों में इस तरह भली-भांति मिला दे जिससे सभी बीजों पर एक समान परत बन जाए
 - इसके उपरांत उपचारित बीजों को छाया में सुखाकर बुवाई करें



- भूमि उपचार**
- भूमि उपचार हेतु एक हेक्टर क्षेत्र के लिए ढाई किलोग्राम ट्राइकोडरमा कल्चर को 100 किलोग्राम सड़े हुए गोबर की खाद में मिलाकर अंतिम जुताई के समय भूमि में भली-भांति मिला दे



- जड़ उपचार**
- प्रत्यारोपित करने वाली पौध के लिए 100 ग्राम ट्राइकोडरमा कल्चर को 5 लीटर पानी में अच्छी तरह घोलकर पौधे की जड़ों को इस घोल में 30 मिनट तक डुबोकर रखें इसके उपरांत उचित क्षेत्र में प्रत्यारोपित करें



उत्पादक

जैव कीटनाशक प्रयोगशाला
(कीट विज्ञान विभाग, रा. कृ. म. वी., उदयपुर)

अनुसंधान निदेशालय,

महाराणा प्रताप कृषि एवं प्रौद्योगिकी विश्वविद्यालय, उदयपुर

अधिक जानकारी हेतु संपर्क करें

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फोन नंबर 0294 241 8866 ,

YEAR WISE PRODUCTIONS *TRICHODERMA VIRIDE*:-

S. No.	Year	Quantity
1.	2013-14	713.500 Kg
2.	2014-15	1201.500 kg
3.	2015-16	597 Kg
4.	2016-17	2253 Kg
5.	2017-18	5230Kg
6.	2018-19	5720 kg
7.	2019-20	1502.5Kg Up to 8/06/2020
8.	2020-21	

ESTEEMED VISITORS *IN HANPV & SLNPV LAB*



Farmers Training -



Students Visit-



YEARLY PRODUCTIONS *HaNPV* & *SiNPV*:-

S.No	Year	QUANTITIES	
		<i>HaNPV</i>	<i>SiNPV</i>
1.	2013-14	36 bottles (100 LE) 241 bottles (250 LE)	22 bottles (250 LE)
2.	2014-15	18 bottles (100 LE) 124 bottles (250 LE)	38 bottles (250 LE)
3.	2015-16	72 bottles (100 LE) 10 bottles (250 LE)	10 bottles (250 LE)
4.	2016-17	37 bottles (250 LE)	28 bottles (100 LE) 17 bottles (250 LE)
5.	2017-18	13 bottles (100 LE) 5 bottles (250 LE)	25 bottles (250 LE)
6.	2018-19	6 bottles (100 LE) 4 bottles (250 LE)	24 bottles (250 LE)
7.	2019-20	12 bottles (100 LE) 08 bottles (250 LE)	14 bottles (250 LE)



Field results:
Seed treatment with *T. viride* + Soil application of
T. viride after enriched in
FYM

Control Plot showing wilt
incidence in gram field



THANK YOU