

## **1.2.2 Number of Add on / Certificate programs offered during the session 2020-2021**

- 1. Certificate Course in Vermiculture**
- 2. Certificate Course in Mushroom Culture**

# 1. Certificate Course in Vermiculture

## Syllabus of Certificate Course in Vermiculture

NILKANTHRAO SHINDE SCIENCE AND ARTS COLLEGE, BHADRAWATI  
DISTRICT CHANDRPUR

### CERTIFICATE COURSE IN VERMICULTURE

#### SYLLABUS

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##### Unit -I

- Vermiculture and Vermicomposting
- Earthworm Species for Vermicompost Production
- Identification of Earthworms
- **Worm Related Opportunities for Farmers-** Potential income diversification  
– Sale of Vermicompost, Sale of Worms

##### Unit-II

- Essential Things for Vermicompost Production
- Common Bedding Materials
- Common Worm Feed Stocks
- Moisture and Aeration in Vermicompost Production
- Vermicompost pit construction

##### Unit -III

- Other Important Parameters for Vermicompost Production and Vermiculture – pH, Salt content, urine content
- **Methods of Harvesting worms** – Manual methods, Self harvesting methods
- **The Value of Vermicompost** – Ability to stimulate plant growth, Level of Beneficial microorganisms, Level of Plant available nutrients, Ability to repel pests

##### Unit-IV

- Calculating Rates of Reproduction

*Ladke*  
18/8/21

Dr. L.S. Ladke  
PRINCIPAL  
N.S. Science & Arts College  
Bhadrawati, Dist-Chandrapur

# Broucher of Certificate Course in Vermiculture

NILKANTHRAO SHINDE SCIENCE AND ARTS COLLEGE, BHADRAWATI, DISTRICT – CHANDRAPUR

## THREE MONTHS -CERTIFICATE COURSE IN VERMICULTURE

### REPORT

The Department of Zoology, Nilkanthrao Shinde Science and Arts College, Bhadrawati district Chandrapur run a three months Certificate Course in Vermiculture for the college students admitted in the year 2020-2021 from science background.

In this regard following mentioned 10 students participated in the said event throughout the year in this certificate course and then participated in written examination. Notes of all the units were provided to the students for reading and understanding the subjects apart from regular teaching.

1. Swapnil M.Chandankar
2. Ku.Babli S.Nagrle
3. Ku.Aachal S.Kannaujiya
4. Akash S.Bhalme
5. Ku.Aabeda I.Pathari
6. Ku.Pratiksha H.Zade
7. Ku.Khushbu S.Lihare
8. Ku.Priyanka U,Yergude
9. Ku.Parikshita C.Kakde
10. Ku.Nutan S.Korde

After the examination the students were evaluated and then marksheets were prepared and given Printed Certificates.

Copies of the certificates were scanned and then were saved in computer for further processing. The course was successfully conducted and students were benefited through it.

Date: 10/8/2021

  
10/8/21

**Dr. L.S. Ladke**  
PRINCIPAL  
N.S. Science & Arts College  
Bhadrawati, Dist-Chandrapur

  
10/8/2021  
**DR.SHASHIKANT SITRE**

COURSE CO-ORDINATOR  
Vermiculture

NILKANTHRAO SHINDE SCIENCE AND ARTS COLLEGE, BHADRAWATI DISTRICT CHANDRAPUR

**CERTIFICATE COURSE IN VERMICULTURE**

**EXAMINATION QUESTION PAPER**

**(ACADEMIC SESSION : 2020-2021)**

**Time : 3 Hours)**

**( Max.Marks : 50**

**Note: All questions are compulsory  
All questions carry equal marks**

- |      |                                                                  |    |
|------|------------------------------------------------------------------|----|
| Q.1  | Write a note on types of earthworms                              | 05 |
| Q.2  | Write a note on Common bedding materials in use for vermiculture | 05 |
| Q.3  | Elaborate on " Common Worm Feed Stocks"                          | 05 |
| Q.4  | Elaborate on other important parameters of Vermiculture          | 05 |
| Q.5  | Write about Pests and Diseases of Compost                        | 05 |
| Q.6  | Write about Static Pile Windrows                                 | 05 |
| Q.7  | Write about Beds or bins                                         | 05 |
| Q.8  | Write a note on Flow-Through Reactors for vermiculture           | 05 |
| Q.9  | Self Harvesting Method of Vermicomposting                        | 05 |
| Q.10 | Write a note on Value of Vermicompost                            | 05 |

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Date of Exam : 6/8/2021

*Ladke*  
6/8/21

**Dr. L.S. Ladke**  
**PRINCIPAL**  
**N.S. Science & Arts College**  
**Bhadrawati, Dist-Chandrapur**

*Sitre*  
6/8/2021  
**Dr. S.R. Sitre**  
**Assistant Professor**  
**Deptt. of Zoology**

NILKANTHRAO SHINDE SCIENCE AND ARTS COLLEGE, BHADRAWATI, DISTRICT – CHANDRAPUR

**THREE MONTHS -CERTIFICATE COURSE IN VERMICULTURE**

**MARKSHEET**

<b>Name of Student</b>	<b>Marks Obtained (Out of 50)</b>
1. Swapnil M.Chandankar	38
2. Ku.Babli S.Nagrale	36
3. Ku.Aachal S.Kannaujiya	37
4. Akash S.Bhalme	34
5. Ku.Aabeda I.Pathan	37
6. Ku.Pratiksha H.Zade	36
7. Ku.Khushbu S.Lilhare	38
8. Ku.Priyanka U,Yergude	37
9. Ku.Parikshita C.Kakde	37
10. Ku.Nutan S.Korde	42

Date: 8/8/2021

*Sitre*  
8/8/2021  
**DR.SHASHIKANT SITRE**

COURSE CO-ORDINATOR  
*Vermiculture*

*Ladke*  
8/8/21

**Dr. L.S. Ladke**  
PRINCIPAL  
N.S. Science & Arts College  
Bhadrawati, Dist-Chandrapur

Nilkanthrao Shinde Science and Arts college  
Bhadrawati, Dist. Chandrapur

CERTIFICATE COURSE IN VERMICULTURE

Session : 2020-2021

List of Students :-

1. Swapnil M. Chandankar
2. Ku. Babli S. Nagrale
3. Ku. Aachal S. Kannaujiya
4. Akash S. Bhalme
5. Ku. Aqbeda I. Pathan
6. Ku. Pratiksha H. Zade
7. Ku. Khushbu S. Lilhare
8. Ku. Priyanka U. Yergude
9. Ku. Parikshita C. Kakde
10. Ku. Nutan S. Korade

Date : 2/8/2021

Sitre  
2/8/2021  
Dr. Shashikant R. Sitre  
Assistant Professor  
N.S. Science and Arts Coll  
Bhadrawati  
(Course Co-ordinator)

Ladke  
2/8/21

Dr. L.S. Ladke  
PRINCIPAL  
N.S. Science & Arts College  
Bhadrawati, Dist-Chandrapur



Bhadrawati Shikshan Sanstha, Bhadrawati's

## **NILKANTHRAO SHINDE SCIENCE & ARTS COLLEGE**

Bhadrawati, District Chandrapur - 442902

Accredited "B" grade by NAAC Bangalore (3rd Cycle) (CGPA : 2.58)

Permanently Affiliated to Gondwana University, Gadchiroli

### **"CERTIFICATE COURSE IN VERMICULTURE"**

This is to certify that Mr./Mrs./Ku. Aabeda I. Pathan  
of N.S. college, Bhadrawati has successfully completed the **"Certificate Course"** in **"Vermiculture"**  
during the Academic Session 2020-2021.

  
**Dr. S. R. Sitre**  
Course Co-ordinator  
N. S. Science & Arts College,  
Bhadrawati

  
**Dr. N. V. Harney**  
Head, Deptt. of Zoology  
N. S. Science & Arts College,  
Bhadrawati

  
**Dr. L. S. Ladke**  
Principal  
N. S. Science & Arts College,  
Bhadrawati



Bhadrawati Shikshan Sanstha, Bhadrawati's

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of N.S. college, Bhadrawati has successfully completed the **"Certificate Course"** in **"Vermiculture"**  
during the Academic Session 2020-2021.

  
**Dr. S. R. Sitre**  
Course Co-ordinator  
N. S. Science & Arts College,  
Bhadrawati

  
**Dr. N. V. Harney**  
Head, Deptt. of Zoology  
N. S. Science & Arts College,  
Bhadrawati

  
**Dr. L. S. Ladke**  
Principal  
N. S. Science & Arts College,  
Bhadrawati



Bhadrawati Shikshan Sanstha, Bhadrawati's

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### **"CERTIFICATE COURSE IN VERMICULTURE"**

This is to certify that Mr./Mrs./Ku. Babli S. Nagrate

of N.S. College, Bhadrawati has successfully completed the "Certificate Course" in "Vermiculture"

during the Academic Session 2020-2021.

  
**Dr. S. R. Sitre**  
Course Co-ordinator  
N. S. Science & Arts College,  
Bhadrawati

  
**Dr. N. V. Harjey**  
Head, Deptt. of Zoology  
N. S. Science & Arts College,  
Bhadrawati

  
**Dr. L. S. Ladke**  
Principal  
N. S. Science & Arts College,  
Bhadrawati



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### **"CERTIFICATE COURSE IN VERMICULTURE"**

This is to certify that Mr./Mrs./Ku. Aachal S. Kannaujiya

of N.S. college, Bhadrawati has successfully completed the "Certificate Course" in "Vermiculture"

during the Academic Session 2020-2021.

  
**Dr. S. R. Sitre**  
Course Co-ordinator  
N. S. Science & Arts College,  
Bhadrawati

  
**Dr. N. V. Harjey**  
Head, Deptt. of Zoology  
N. S. Science & Arts College,  
Bhadrawati

  
**Dr. L. S. Ladke**  
Principal  
N. S. Science & Arts College,  
Bhadrawati



Bhadrawati Shikshan Sanstha, Bhadrawati's

## **NILKANTHRAO SHINDE SCIENCE & ARTS COLLEGE**

**Bhadrawati, District Chandrapur - 442902**

Accredited "B" grade by NAAC Bangalore (3rd Cycle) (CGPA : 2.58)

Permanently Affiliated to Gondwana University, Gadchiroli

### **"CERTIFICATE COURSE IN VERMICULTURE"**

This is to certify that ~~Mr./Mrs./Ku.~~ Priyanka U. yergude

of N.S. college, Bhadrawati has successfully completed the **"Certificate Course"** in **"Vermiculture"**

during the Academic Session 2020 - 2021.

**Dr. S. R. Sitre**  
Course Co-ordinator  
N. S. Science & Arts College,  
Bhadrawati

**Dr. N. V. Harney**  
Head, Deptt. of Zoology  
N. S. Science & Arts College,  
Bhadrawati

**Dr. L. S. Ladke**  
Principal  
N. S. Science & Arts College,  
Bhadrawati

## 2. Certificate Course in Mushroom Culture

### Broucher of Certificate Course in Mushroom Culture Technology

**Nilkanthrao Shinde Science and Arts College  
Bhadrawati Dist – Chandrapur**

**DEPARTMENT OF BOTANY**



**ADMISSION OPEN FOR**  
**CERTIFICATE COURSE IN MUSHROOM CULTURE**  
**SESSION 2020-21**

**DURATION : 03 MONTHS**

**ELIGIBILITY: XII PASS**

**DR. P. N. NASRE**

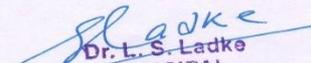
**CO-ORDINATOR**

**DEPT. OF BOTANY**

**MOBILE NO. :9225211274**

**DR. L. S. LADKE**

**PRINCIPAL**

  
**Dr. L. S. Ladke**  
**PRINCIPAL**  
**N.S. Science & Arts College**  
**Bhadrawati, Dist-Chandrapur**

# Syllabus of Certificate Course in Mushroom Culture Technology

**NILKANTHRAO SHINDE SCIENCE AND ARTS COLLEGE,  
BHADRAWATI DIST. CHANDRAPUR**

**CERTIFICATE COURSE IN MUSHROOM CULTURE  
TECHNOLOGY**

## SYLLABUS

Certificate course will be of 100 marks, each unit contains 25 marks weightage. Certificate course contains four units which is given below

### Unit-I

General characteristics of mushrooms, life history, Reproduction, spore dissemination, Growth, size, colors, color changes and surface textures, odors, taste, exudations, Bio-luminescence

### Unit-II

Growing mushrooms, time for growing mushrooms, manure, composting, mushroom house and preparation of the beds, spawning, casing, watering, picking & packing.

### Unit-III

Sterilization, methods of sterilization, Autoclave, Refrigerator, Raw material, economic importance of fungi, edible species, poisonous species,

### Unit-IV

Economic importance of fungi, edible species, poisonous species, common edible mushrooms, kinds safe for the beginner, Recipes for cooking mushrooms.

### Books Recommended for the study

- 1) A guide to the mushrooms by Loui's C.C Krieger published by Asiatic Publisheing House, Delhi(India) ISBN : 81-87067-13-6, Edition: 2007
- 2) The gteat encyclopedia of mushrooms by Konemann Verlagsge selschaft MBH Bonner str. 126, D-50968 colonge ISBN: 3-8290-17286 10987654321, Edition, 1999
- 3) Botany for Degree students-fungi by B.R. Vashishta and A.K. Sinha. published by S. Chand publication, New Delhi(India) ISBN: 81-219-2826-5, Edition (Reprint) 2008
- 4) The fungi by P.D. Sharma published by Rastogi publications, Meerut (India), 2<sup>nd</sup> Edition

(N.P.N. Nasare)  
Course-coordinator  
(Dr. P. N. Nasare)

N. S. Wadhawe  
Head, Department of Botany  
(Dr. N. S. Wadhawe)

L. S. Ladke  
Principal  
N.S. Science & Arts College  
Bhadrawati, Dist-Chandrapur

## Students List

Nilkanthrao Shinde Science and Arts College, Bhadrawati  
Dist - Chandrapur

### CERTIFICATE COURSE IN MUSHROOM CULTURE TECHNOLOGY

Academic year - 2020-2021

- 1) Ku. Pranali Rajendra Date
- 2) Ku. Pratiksha Pranin Shinde
- 3) Ku. Shrutika Sainath Kumasre
- 4) Ku. Puzva Haridas Desale
- 5) Ku. Khushboo Asif Sheikh
- 6) Ku. Megha Vitthalrao Tarale
- 7) Ku. Swati Dadaji Bawane
- 8) Ku. Humera Haidat Sheikh
- 9) Ku. Pooja Govinda Patrange
- 10) Ku. Mehendi Nareshchandra Chalkhure
- 11) Ku. Kalyani Sachin Donge
- 12) Ku. Ritesh Krishnachandra Tiwari
- 13) Ms. Mayur Vishal Gaurkar
- 14) Ms. Kunal Sunil Patrange
- 15) Ms. Neha Balwant Prasad.
- 16) Ms. Hareshad Shyamsunder Askar
- 17) Ms. Rutika Anil Filmsati
- 18) Ms. Priti Bandu Pote

~~ARNASARAO~~ 26/12/2021  
CDR P.N. Narsare  
Course Coordinator  
Certificate course in Mushroom  
Cult. into Technology

*Ladke*  
26/12/21  
Dr. L. S. Ladke  
PRINCIPAL  
N.S. Science & Arts College  
Bhadrawati, Dist-Chandrapur

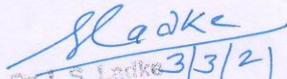
Nilkanthrao Shinde Science and Arts College, Bhadrawati  
Dist-Chandrapur, Maharashtra

SUMMARY OF THE REPORT OF CERTIFICATE  
COURSE IN MUSHROOM CULTURE TECHNOLOGY

In the academic year, 2020-2021, certificate course was conducted for the students of B.Sc. II. Total 18 (Eighteen) students were participated in the certificate course in Mushroom culture Technology. The students of this course learned <sup>about</sup> the technique of Mushroom culture at laboratory level. They will definitely benefited in future.

Place - Bhadrawati

Date - 03/03/2021

  
Dr. L. S. Ladke 3/3/21  
PRINCIPAL  
N.S. Science & Arts College  
Bhadrawati, Dist-Chandrapur

NILKANTHRAO SHINDE SCIENCE AND ARTS COLLEGE  
BHADRAWATI, DIST-CHANDRAPUR

CERTIFICATE COURSE IN MUSHROOM CULTURE  
TECHNOLOGY

Academic Year-2020-2021

RESULT SHEET

Max. Marks - 100

Sr. No	Name of student	Marks obtained	Result
1.	Ku. Parnali Rajendra Date	78	Pass
2.	Ku. Pratiksha Pravin Shinde	77	Pass
3.	Ku. Shrutika Sainath Kumbare	75	Pass
4.	Ku. Purnva Haridas Deotale	76	Pass
5.	Ku. Khushboo Asif Sheikh	80	Pass
6.	Ku. Megha Vitthalrao Patange	79	Pass
7.	Ku. Swati Dadaji Baware	78	Pass
8.	Ku. Humera Haides Sheikh	75	Pass
9.	Ku. Pooja Gevinda Patange	76	Pass
10.	Ku. Mehendi Nazeshbhai Chalkhuse	81	Pass
11.	Ku. Kalyani Sachin Donge	83	Pass
12.	Ku. Ritesh Keishvachandra Timas	76	Pass
13.	Ms. Mayur Vishal Gauskas	85	Pass
14.	Ms. Kunal Sunil Patange	84	Pass
15.	Ku. Neha Balwant Bhalad	77	Pass
16.	Ms. Harshad Shyamrao Askas	79	Pass
17.	Ms. Rutika Anil Fulmali	84	Pass
18.	Ms. Priti Bander Pote	83	Pass

Date :- 01/03/2021

Place :- Bhadrawati

(ARPNN) Narase  
CDs - Praveenkumar R. Narase  
course coordinator  
Certificate Course in Mushroom  
Technology

Ladke  
1/3/21  
Dr. L. S. Ladke  
PRINCIPAL  
N.S. Science & Arts College  
Bhadrawati, Dist-Chandrapur

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**NILKANTHRAO SHINDE SCIENCE AND ARTS COLLEGE,**

Institution of Higher Learning Research and specialized studies

Bhadrawati, Dist. - Chandrapur (M. S.) 442902

UGC 2 (f) and 12 (B) status

Accredited "B+ grade (Third Cycle - 2016) with CGPA - 2.58 by NAAC Bangalore



**CERTIFICATE COURSE IN MUSHROOM CULTURE TECHNOLOGY**

**CERTIFICATE**

This is to certify that Mr./Ku. Khushboo Asif Sheikh  
\_\_\_\_\_ has successfully completed certificate course in Mushroom Culture Technology  
in the academic Session 2020-2021.

Course Co-ordinator  
(Dr. P. N. Nasare)

Head, Department of Botany  
(Dr. N. S. Wadhave)

Dr. L. S. Ladke  
PRINCIPAL  
N.S. Science & Arts College  
Bhadrawati, Dist-Chandrapur

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**CERTIFICATE COURSE IN MUSHROOM CULTURE TECHNOLOGY**

**CERTIFICATE**

This is to certify that Mr./Ku. Mehardi Nareeshchandra Chalkhure  
\_\_\_\_\_ has successfully completed certificate course in Mushroom Culture Technology  
in the academic Session 2020-2021.

Course Co-ordinator  
(Dr. P. N. Nasare)

Head, Department of Botany  
(Dr. N. S. Wadhave)

Dr. L. S. Ladke  
PRINCIPAL  
N.S. Science & Arts College  
Bhadrawati, Dist-Chandrapur

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Bhadrawati Shikshan Sanstha, Bhadrawati

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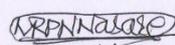
**CERTIFICATE COURSE IN MUSHROOM CULTURE TECHNOLOGY**

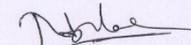
**CERTIFICATE**

This is to certify that Mr./Ku. Kunal Sunil Patrange

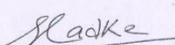
\_\_\_\_\_ has successfully completed certificate course in Mushroom Culture Technology

in the academic Session 2020-2021.

  
 Course Co-ordinator  
 (Dr. P. N. Nasare)

  
 Head, Department of Botany  
 (Dr. N. S. Wadhave)

  
**Dr. L. S. Ladke**  
 PRINCIPAL  
 N.S. Science & Arts College  
 Bhadrawati, Dist-Chandrapur

  
 Principal  
 (Dr. L. S. Ladke)

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Bhadrawati Shikshan Sanstha, Bhadrawati

**NILKANTHRAO SHINDE SCIENCE AND ARTS COLLEGE,**

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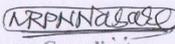
**CERTIFICATE COURSE IN MUSHROOM CULTURE TECHNOLOGY**

**CERTIFICATE**

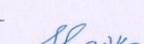
This is to certify that Mr./Ku. Megha Vithalrao Tarale

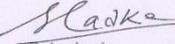
\_\_\_\_\_ has successfully completed certificate course in Mushroom Culture Technology

in the academic Session 2020-2021.

  
 Course Co-ordinator  
 (Dr. P. N. Nasare)

  
 Head, Department of Botany  
 (Dr. N. S. Wadhave)

  
**Dr. L. S. Ladke**  
 PRINCIPAL  
 N.S. Science & Arts College  
 Bhadrawati, Dist-Chandrapur

  
 Principal  
 (Dr. L. S. Ladke)

\*\*\*\*\*



Bhadrawati Shikshan Sanstha, Bhadrawati

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## CERTIFICATE COURSE IN MUSHROOM CULTURE TECHNOLOGY

### CERTIFICATE

This is to certify that Mr./Ku. Rutika Anil Fulmali

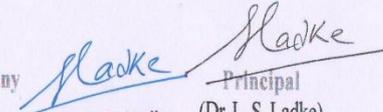
\_\_\_\_\_ has successfully completed certificate course in Mushroom Culture Technology  
in the academic Session 2020-2021.



Course Co-ordinator  
(Dr. P. N. Nasare)



Head, Department of Botany  
(Dr. N. S. Wadhve)



Dr. L. S. Ladke  
PRINCIPAL

Principal  
(Dr. L. S. Ladke)

N.S. Science & Arts College  
Bhadrawati, Dist. Chandrapur