



DEPARTMENT OF BOTANY
Dr. AMBEDKAR COLLEGE

NAAC RE-ACCREDITED WITH "A" GRADE
Deekshabhoomi, Nagpur-440010 (M.S.) INDIA

Certificate Course in Plant Tissue Culture: A Report

The Botany department runs self finance research oriented short term course on “Certificate Course in Plant Tissue Culture” for selected B.Sc. (Sem-V and Sem-VI) students for Six months duration. The first batch started from 2012-13 academic sessions. The course has maximum 10 students intake capacity for each batch. Plant Tissue Culture Lab can be termed as the perfect breather for a passionate plant researcher for conservation of RET taxa. Selected students are trained resourcefully to lead research projects and contribute towards smooth operational *in-vitro* conservation activities. The lab group members associate with each other as family and believe in achieving success as a unit combining their expertise coming from this discipline.



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Plant tissue culture techniques are essential to many types of academic inquiry, as well as to many applied aspects of plant science. In the past, plant tissue culture techniques have been used in academic investigations of totipotency and the roles of hormones in cytodifferentiation and organogenesis. Currently, tissue-cultured plants that have been genetically engineered provide insight into plant molecular biology and gene regulation. Plant tissue culture techniques are also central to innovative areas of applied plant science, including plant biotechnology and agriculture. The technique of PTC is well translated from 'concept' to 'commercialization'. As an industry, PTC is no more a nascent industry in India. It is flourishing with multidirectional growth and multimillion dollar turn over. Since PTC is a powerful technique for mass production in many crops, it has become an important tool in the nursery and farming industry. PTC technique has been responsible for bringing about the second green revolution in our country.

The course is designed to equip participants with the understanding and skills to carry out and initiate in vitro regeneration in plants and to emphasize the importance of tissue culture as a pre-requisite to the application of plant biotechnology in conservation of rare and endangered plant species of Vidarbha region. Techniques are included in curriculum as an introduction to plant tissue culture, experimental techniques, explants selection, media preparation, explants sterilization, inoculation technique, callus induction, multiple shooting and rooting, regeneration and hardening including many hands-on practical sessions. It focuses on course work that relates directly to plant tissue culture research and biotechnology industry and facilitates immediate employment to students as a laboratory proprietors, laboratory supervisors and laboratory technicians.

Department of Botany have a very well established Plant Tissue Culture Laboratory having number of instruments which is required for above said course such as: Culture room, Centrifuge machine, pH meter, Autoclave, Refrigerator, Laminar air flow chamber advanced type, Air conditioners, Incubator, Microscope compound, Analytical balance, Electronic balance, Orbital Shaker machines, Tissue Culture Racks, Distilled water unit etc.



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Listed students completed their project work on various important medicinal plants under the guidance of **Dr. Rahul B. Kamble** and **Prof. S.R. Somkuwar**.

| S.N | TITLE OF THE PROJECT | NAME OF THE STUDENTS | COURSE/SESSION |
|-----|---|--|---------------------|
| 1 | In vitro Studies of <i>Desmodium gangeticum</i> (L.) DC | K.R. Aswale, G.U. Chavan & P.B. Ghosh | CC-PTC 2015-2016 |
| 2 | Micropropagation of <i>Hemidesmus indicus</i> var. <i>pubescens</i> Wight & Arn. | V.A. Fulpatil, K.P. Kakani, H.N. Rahangdale & S.H. Suroshe | CC-PTC 2015-2016 |
| 3 | Plant Tissue Culture of <i>Gymnema sylvestre</i> R.Br.: A conservational approach | A.D. Zade, A.G. Kalne, N.D. Tibude & D.N. Yadav | CC-PTC 2015-2016 |
| 4 | Direct differentiation and plantlet regeneration in <i>Vitex trifolia</i> L. | P.V. Kharat, D. H. Giripunje, S. S. Patil & R. K. Tumbade | CC-PTC 2016-2017 |
| 5 | In vitro direct shoot regeneration of endangered plant: <i>Rauvolfia serpentina</i> (L.) Benth. Ex Kurz | G.S. Ugale, A.D. Landge, M.S. Kadu & M.S. Gajbhiye | CC-PTC 2016-2017 |
| 6 | Clonal propagation of Insulin plant: <i>Costus pictus</i> (D.Don.) | T.S. Hadke, A.S. Jadhav, M.D. Raut & V.R. Taiwade | CC-PTC 2016-2017 |
| 7 | Direct differentiation and plantlet regeneration in <i>Clerodendrum infortunatum</i> Gaertn. | B.N. Raut; S.D. Raut; S.M. Ganer; R.D. Rathore; A.S. Gajbhiye | CC-PTC 2017-2018 |
| 8 | Micropropagation of a high value medicinal plant: <i>Cissus quadrangularis</i> L. | P.A. Pantawane; N.G.Shende; T.S. Kuthe; A.S.Fulzele | CC-PTC 2017-2018 |
| 9 | In vitro propagation of <i>Argyrea nervosa</i> (Burm. f.) Bojer. | N.M. Sethi; S.N. Yadav; V.S. Verma; M.S. Paradkar; S.P. Ambone | CC-PTC 2017-2018 |

This session 2018-2019, 11 students are working for their project work on various topics.



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SOME GLIMPSES OF WORK DONE IN CC-PTC



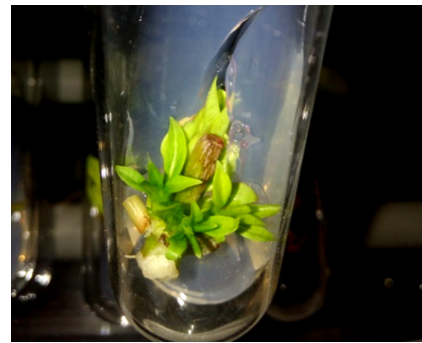
Callus Induction in *Gymnema sylvestre*



Direct regeneration in *Desmodium gangeticum*



Callus induction in *Hemidesmus indicus* var. *pubescens*



Callus & Regeneration in *Rauvolfia serpentina*



CC-PTC-Batch- 2015-2016



CC-PTC-Batch- 2017-2018



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DEPT. OF BOTANY
DR. AMBEDKAR COLLEGE,
DEEKSHABHOOMI, NAGPUR



CERTIFICATE COURSE IN PLANT TISSUE CULTURE

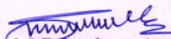
Date: 24-08-2018

Notice for CET-PTC

All the students of B.Sc. 5th Semester (CBZ-BCB) are hereby informed that the Common Entrance Test (CET) for Certificate Course in Plant Tissue Culture is being scheduled on Thursday, 06/09/2018 at 11:00 am. in Laboratory-II Dept. of Botany. The test is based on MCQ types in the context of tissue culture techniques, working principle of instruments, conservation and applications.


(Dr. Rahul B. Kamble)

COORDINATORS

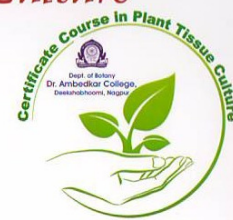

(Prof. S.R. Somkuwar)


PRINCIPAL
DR. AMBEDKAR COLLEGE
NAGPUR.

Certificate Course in Plant Tissue Culture

Department of Botany

DR. AMBEDKAR COLLEGE
Deekshabhoomi, Nagpur



CERTIFICATE

This is to certify that Mr/Ms Vinaykumar Verma.....
has completed "Certificate Course in Plant Tissue Culture" during the session
2017-2018. at Dept of Botany, Dr. Ambedkar College, Deekshabhoomi, Nagpur.
He/she has successfully carried out the project work entitled
"In vitro propagation of Argyreia nervosa (Burm.f.) Bojer."


Dr. P.C. Pawar
Principal


Prof. S. R. Somkuwar
Co-ordinator


Dr. Rahul B. Kamble
Guide & Joint Co-ordinator