CENTRAL UNIVERSITY OF KERALA
केरल केन्द्रीय विश्वविद्यालय

Arun Kumar K Faculty Plant Science <arunkumark@cukerala.ac.in>

Requesting the approval of the revised M.Sc Botany syllabus of CUK plant Science-reg.

7 messages

Arun Kumar K Faculty Plant Science <arunkumark@cukerala.ac.in> Thu, Feb 18, 2021 at 1:07 PM
To: profkrchandrashekar@gmail.com
Cc: Parimelazhagan Thangaraj <drparimel@gmail.com>, Janardhana GR <grjbelur@gmail.com>, Sivaram V <sivaram900@gmail.com>, "Dr Dennis Thuruthiyil T." <den_thuruthiyil@cukerala.ac.in>, Ramachandran Kotharambath <ram@cukerala.ac.in>, Ginny Antony <ginnyantony@cukerala.ac.in>

Dear Sir/Madam

Greetings from Dept of Plant science, Central University of Kerala.

I am thankful to all the members for your continuous support and contribution for the successful conduct of BOS meeting held online on **12th Feb 2021.**
Here I attached the M.Sc Botany revised syllabus by incorporating the suggestions of the experts in the following points.

1) Revision carried out by incorporating the Programme objectives and outcome and all courses objectives and outcome.

2) Revision carried out by incorporating a list of practicals for newly introduced two skill based elective courses listed at the end as

i. BTY 5007 Hands on training on Plant metabolites and Drug discovery
ii. BTY 5008 Organic Farming

3) List of suggested 14 MOOCs for choice for elective courses

As our Academic council meeting is scheduled on 23-02-2021, I request all the experts to approve the attached syllabus through by mail on or before 21-02-2021.

Thanks once again.

Regards

Dr.K.Arunkumar, Ph.D
Professor & Head
Department of Plant Science
School of Biological Sciences
Central University of Kerala
Periye-671 320
Kasaragod,Kerala, India
Mobile: 91-9865051016
http://www.cukerala.ac.in/index.php?option=com_content&view=article&id=601&Itemid=410&lang=en

2 attachments

MOOC list .docx
18K

Syllabus M.Sc PLS -2020-21-GA.docx
222K

Ramachandran Kotharambath <ram@cukerala.ac.in> Thu, Feb 18, 2021 at 1:24 PM
To: Arun Kumar K Faculty Plant Science <arunkumark@cukerala.ac.in>
Cc: profkrchandrashekar@gmail.com, Parimelazhagan Thangaraj <drparimel@gmail.com>, Janardhana GR <grjbelur@gmail.com>, Sivaram V <sivaram900@gmail.com>, "Dr Dennis Thuruthiyil T." <den_thuruthiyil@cukerala.ac.in>, Ginny Antony <ginnyantony@cukerala.ac.in>

Dear Sir

I approve the syllabus.

Sincerely
Ram

[Quoted text hidden]
--
--
Ramachandran Kotharambath | Assistant Professor | Department of Animal Science | Central University of Kerala | Tejaswini Hills, Periya | Kasaragod, Kerala | India

---

Sivaram V <sivaram900@gmail.com> Thu, Feb 18, 2021 at 1:31 PM
To: Arun Kumar K Faculty Plant Science <arunkumark@cukerala.ac.in>
Cc: profkrchandrashekar@gmail.com, Parimelazhagan Thangaraj <drparimel@gmail.com>, Janardhana GR <grjbelur@gmail.com>, "Dr Dennis Thuruthiyil T." <den_thuruthiyil@cukerala.ac.in>, Ramachandran Kotharambath <ram@cukerala.ac.in>, Ginny Antony <ginnyantony@cukerala.ac.in>

Dear Dr Arun Kumar

I am herewith accepting the M Sc Botany Syllabus of CKU.

regards,

Sivaram
[Quoted text hidden]

Chandrashekar K R <profkrchandrashekar@gmail.com> Thu, Feb 18, 2021 at 2:00 PM
To: Arun Kumar K Faculty Plant Science <arunkumark@cukerala.ac.in>

Dear Dr Arun Kumar,
The M. Sc. Syllabus of Plant Science of CUK is here by approved.
Chandrashekar K R

On Thu, 18 Feb 2021, 12:54 pm Arun Kumar K Faculty Plant Science, <arunkumark@cukerala.ac.in> wrote:
[Quoted text hidden]

Ginny Antony <ginnyantony@cukerala.ac.in> Fri, Feb 19, 2021 at 3:57 AM
To: Sivaram V <sivaram900@gmail.com>
Cc: Arun Kumar K Faculty Plant Science <arunkumark@cukerala.ac.in>, profkrchandrashekar@gmail.com, Parimelazhagan Thangaraj <drparimel@gmail.com>, Janardhana GR <grjbelur@gmail.com>, "Dr Dennis Thuruthiyil T." <den_thuruthiyil@cukerala.ac.in>, Ramachandran Kotharambath <ram@cukerala.ac.in>

Syllabus approved. Thank You for the efforts from all.
[Quoted text hidden]

Dr Dennis Thuruthiyil T. <den_thuruthiyil@cukerala.ac.in> Thu, Feb 18, 2021 at 3:34 PM
To: Arun Kumar K Faculty Plant Science <arunkumark@cukerala.ac.in>

Syllabus approved.
Dennis
[Quoted text hidden]

Parimelazhagan Thangaraj <drparimel@gmail.com> Thu, Feb 18, 2021 at 4:22 PM
To: Ginny Antony <ginnyantony@cukerala.ac.in>
Cc: Sivaram V <sivaram900@gmail.com>, Arun Kumar K Faculty Plant Science <arunkumark@cukerala.ac.in>, profkrchandrashekar@gmail.com, Janardhana GR <grjbelur@gmail.com>, "Dr Dennis Thuruthiyil T." <den_thuruthiyil@cukerala.ac.in>, Ramachandran Kotharambath <ram@cukerala.ac.in>

Dear Prof,

I am accepting and approving the syllabus.

Thank you

Parimel.

On Thu, Feb 18, 2021 at 3:27 PM Ginny Antony <ginnyantony@cukerala.ac.in> wrote:
[Quoted text hidden]

--
Dr. Parimelazhagan Thangaraj, Ph.D.
Professor
Department of Botany
Bharathiar University
Coimbatore - 641046

Mobile: 8903001973
E-mail: drparimel@gmail.com; drparimel@buc.edu.in

பாரதியார் பல்கலைக்கழகம்
Bharathiar University
Re-accredited at the "A" Grade Level by NAAC
Coimbatore, Tamilnadu, INDIA.

BTY 5001	**PLANT TISSUE CULTURE TECHNIQUES** (Credit4;Theory 3hrs;Practical3 hrs)
AIM	To familiarize with plant tissue culture techniques and is an employability based skill development course
Objectives	• To teach different components used in tissue culture media and their specific uses. • To teach different methods of micropropagation and their advantages • To teach different techniques used in in vitro conservation.
Learning outcome	After completion of the course, the students ➢ Are able to understand the principles of plant tissue culture and various *in vitro* techniques ➢ Proficient for developing haploid and triploid plants through tissue culture protocol. ➢ Understand the techniques of protoplast isolation, culture and fusion and their application in crop improvements.
Sl.No	**Theory**
1.	Historyofplanttissueculture,cellulartotipotency:conceptsandapplications.
2.	Techniquesofplanttissueculture,essentialrequirementsofaplanttissue culture laboratory, Plant tissue culture media, General composition of thesolidandliquidmedia, variousgellingagents, mediaselection.
3.	Sterilization of medium, galsswares, instruments, plant material, transfer area,Preparation of explants, sterilization culture and incubation. Subculture andhardening.Micropropagation:various stagesof micropropagation, importance.
4.	Principles and protocol applications of culture of different explants, embryoculture,importanceof embryo culture
5.	Haploidplantproduction,Importanceofhaploidplants. Androgenesis: pre-treatment of anther/pollen grains, callus induction andshoot regeneration, androgenic embryos, their development. Merits anddemeritsof anther culture. Microspore culture, Protocol, Advantages of microspore culture over antherculture.
6.	*In vitro*gynogenesis, Ovary/ovule/flower bud culture, embryo induction fromculturedovary/ovule/flowerbud,Callusinductionfromembryosaccellsand theirorganogenesis,advantagesofgynogenenicplantsoverangrogenicplants
7.	Triploidplantproduction:Importanceoftriploidplants,endospermculture, stage of endosperm culture, role of embryo in endosperm culture, advantagesandlimitations of triploid plants.
8.	Suspensionculture,batchculture,continuousculture,singlecellculture.
9.	Somatic embryogenesis: Factors affecting somatic embryogenesis,differences between somatic and zygotic embryogenesis, synthetic seedproduction, desiccated and hydrated synthetic seeds, merits and demerits ofsyntheticseeds,somaclonalvariationandapplicationsofsomacloanl variationincropimprovement.

10.	Protoplastisolation,culture,plantregenerationfromprotoplast,protoplast fusionandsomatichybridization,cybrids.
11.	Invitrogermplasmstorage,in-situconservation,ex-situconservation, cryopreservation.
12.	Applicationoftissueculturefor cropimprovement,problems,limitationsand futureprospectus.
S. No.	**Practical**
1.	PreparationofthestocksolutionsofMSmedium,
2.	PreparationofMSmediumfromstocksolutions,
3.	Isolation, preparation, sterilization and inoculation of different explants likeshoottip, node, anther, embryo and cambium
4.	Isolationandfusionofplantprotoplasts,
5.	Preparationofsyntheticseeds,
6.	Preparationofselectivemediumfordroughtorsalinityresistance.Preparation of MS soild medium from stock solutions containing auxin and cytokinin,NaClor PEG, and inoculation,
7.	Findouttheuninucleatestageofantherandantherculture
8.	Dissect out an embryo from any seed and culture it on a suitable solidmedium.

TextBooks:

1. Barbara M. Reed (2008) Plant Cryopreservation: A Practical Guide. Springer,Heidelberg.
2. Bhojwani SS, Razdan MK (1996) Plant tissue culture: Theory and Practice. Elsevier,NorthHolland
3. Colin Ratledge, Bjorn Kristianson (2001) Basic biotechnology. Cambridge Universitypress.
4. Dixon RA, Gonzales RA. (2004) Plant cell culture, a practical approach (II Edn). OxfordUniversityPress.
5. EricaE.Benson(1999)PlantConservationBiotechnology.TaylorandFrancis,USA
6. Evans DE, Coleman JOD, Kearns A (2003) Plant Cell Culture. Taylor and Francis,USA.
7. Gamborg L, Philips GC (Eds.) (2005) Plant cell, tissue and organ culture: Fundamentalmethods.NarosaPublishing House, New Delhi.
8. Hamish A Collin, Sue Edwards (1998) Plant tissue culture. Bios scientific publishers,India
9. Michael R. Davey, Paul Anthony (2010) Plant Cell Culture: Essential Methods. Wiley-BlackwellPublishers, India
10. Susan R. Barnum (1998) Biotechnology an introduction. Wadsworth PublishingCompany,USA.
11. Wang TL, Cuming A. (1996) Embryogenesis the generation of a plant. Bios ScientificPublishersLimited, UK
12. William J Thieman, Michael A Palladino (2009) Introduction to biotechnology (II Edn).Pearson.