Integrated Workshops on Advance Biotechnology Techniques

Name of the module chosen :

Name of the candidate :

Course /Designation :

Institution :

Institutional Address :

(Telephone, E-mail)

Residential Address :

(Telephone, E-mail)

Contact Phone No. :

E-mail ID :

Registration fee enclosed : Yes / No

If Yes,

DD No. / Receipt No. :

Name of the Bank & Branch :

Date :

Amount :

Place: Signature of the participant

ORGANIZING COMMITTEE

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Chancellor, Karpagam Academy of Higher Education

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Department of Biotechnology, FASH, KAHE

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Dr. B.V.PRADEEP, Associate Professor,

HoD of Microbiology , FASH, KAHE.

Dr. S. BARATHKUMAR, Assistant Professor

Assistant Professor, Department of Biotechnology, FASH

Integrated Workshops on Advance Biotechnology Techniques

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KARPAGAM

ACADEMY OF HIGHER EDUCATION

(Deemed to be University)

(Established Under Section 3 of UGC Act, 1956)

Module 1 : Volatile molecule analysis (Jan 3-4, 2019)

Module 2 : Functional Properties of Biomolecule (Jan 30-31 2019)

Module 3 : Detection of Heavy Metals (Feb 14-15, 2019)

Module 4 : Gene amplification (Feb 27- 28, 2019)

Module 5 : Molecular Modelling (Mar 7-8, 2019)

Organized by

Central Instrumentation Facility & Department of Biotechnology, FASH

Karpagam Academy of Higher Education

(Deemed to be University)

(Established Under Section 3 of UGC Act 1956)

Eachanari, Pollachi Main Road, Coimbatore-21.

Tamil Nadu, India

Phone: 0422 - 2980011 - 15 | Fax: 0422-2980022,23

E-mail: info@kahedu.edu.in

Web: www.kahedu.edu.in

KARPAGAM ACADEMY OF HIGHER EDUCATIO

The Karpagam Academy of Higher Education is located in a sprawling, green, lush campus extending 26 acres. It has emerged from Karpagam Arts & Science College (Autonomous) a unit under the Karpagam Charity Trust established in 1989 founded by the great philanthropist, industrialist and educationist Dr.R.Vasanthakumar with the vision of instilling originality in the learning minds, impart quality and value-based education and engage in Research and Development with the noble objective of creating unique men and women to serve and lead the society. Karpagam Academy of Higher Education was conferred Deemed to be University status by the Ministry of Human Resource Development in August 2008 under section 3 of the UGC Act 1956. It is a recognised Deemed University by the UGC. It is a member of the Association of Indian Universities. The University has been accredited by the NAAC in 2015. It has been Ranked 90th place by NIRF, MHRD, Government of India in 2017. The University has 4 Faculty - Faculty of Arts, Science and Humanities, Faculty of Engineering, Faculty of Architecture and Faculty of Pharmacy. It has 25 Departments offering a wide range of 78 academic programmes from graduation to doctorate levels. The University has more than 5,000 students on campus, with a strong contingent of more than 350 teaching faculty, well supported by an almost equal number of administrative and support staff. Faculty have got good number of research projects with financial support from various funding agencies like DBT / DST / ICMR and have filed more than 45 patents. As many as 1600 Research papers have been published by our faculty in SCOPUS and Peer Reviewed Journals. The Institute ensures that education epitomizes excellence in every sphere and students are prepared to take on the challenges of the day and become the next generation leaders.

THE CENTRAL INSTRUMENTATION LAB

Karpagam Academy of Higher Education has set up an Central Instrumentation Facility funded by DST to provide sophisticated analytical instruments to help research workers pursue important developments / R&D activities requiring such facilities and for optimal utilization of available resources. Central lab will also offer solution to analytical problems, including sample preparation, development of analytical methods for specific needs and interpretation of results, etc. It will also organize courses / workshops regularly on the use and application of various instruments and analytical techniques; train technicians for maintenance and operation of sophisticated instruments and provide consultancy/R&D facilities to the industries in the region and help them in measurement, calibration and testing of quality of raw materials and end products. The services provided at Central Lab are available to any user from anywhere in the country. The services are offered on payment of nominal charges. It is free for all internal users for research purposes. In the central instrumentation facility provide the research and analytical services with the following sophisticated equipments

1.HPLC (Shimadzu)
2.HPTLC (Camag)
3.AAS (Shimadzu)
4.Real Time PCR (Agilent)
5.Gas Chromatography (Shimadzu)
6.FT-IR (Shimadzu)
7.UV-Visible Spectrophotometer (Shimadzu)

THE TRAINING

Module 1. Volatile molecule analysis by Gas chromatography has 2 days hands on session provide hands-on training to the individuals/students regarding the GC sample preparation and analysis using modern techniques. Metabolite fingerprint is the fast growing field in the biochemistry stream. Through metabolites identification and composition of natural material has vide application in food and pharma industries. This training covers the extraction of essential oil from natural source and gas chromatography analysis of volatile molecules with existing standards.

Module 2 : Functional properties of biomolecules analysis by Fourier Transform Infra red spectroscopy (FT-IR) provide a keen knowledge to understand the chemical functional properties of isolated biomolecules from natural sources. Before entering to the NMR spectral studies for isolated molecules ensure their functional properties to avoid time consumption and cost. This techniques is a very important technique in a pharmaceutical industries.

Module 3. Elemental Analysis by Atomic Absorption Spectroscopy (AAS) provide a idea to measure the metal elements in the given sample. This technique provide a vide range of applications to the participants may use in the agriculture. To detection of metal elements like Cu, Fe, Zn and Cr in the soil and food sample with the respective lamp in the AAS system.

Module 4. This module deals with DNA amplification of small fragments by using the polymerase chain reaction. This is will help to identify the organism and in forensic studies this technique play a vital role.

Module 5. Molecular Modelling

The workshop on 'Molecular Modelling' is mainly meant to graduate students, who are keenly interested to scrutinize the structural architectures, biological functions and dynamic motions of proteins from sequence and structural standpoints by means of in silico tools. The workshop would also provide extensive training to the participants on modeling three-dimensional structures of proteins by using variety of computational strategies. In addition to the hands-on training, marvels and indispensable roles of bioinformatics for sustainable growth of science would also be dealt through lectures on specific research topics.

Central Instrumentation Laboratory provide hands on training in various aspects of life science research with various sophisticated instruments. We plan to organize as five different working module with different objectives as

Schedule

The objectives of the workshop are:

This platform will enhance the knowledge about the volatile molecule identification separation, functional group characterization, gene amplification, elemental characterization using sophisticated instruments to the young budding researchers. In addition the participants gain the knowledge on molecular modeling for therapeutics.

SCHEDULE OF THE MODULE

Module	Detail of the event	Faculty incharge	Schedule of the event
Module 1.	Volatile molecule analysis by Gas chromatography	Dr.A.Sangilimuthu Asst.Prof, Dept of Biotech, KAHE	Jan 3-4 2019
Module 2	Functional properties of biomolecules analysis by FT-IR	Dr.A.Sangilimuthu Asst.Prof, Dept of Biotech, KAHE	Jan 30-31 2019
Module 3.	Heavy Metal analysis Analysis by AAS	Dr.A.Sangilimuthu Asst.Prof, Dept of Biotech, KAHE	Feb 14-15 2019
Module 4.	Gene Amplification by PCR	Dr.S.Barathkumar Asst.Prof, Dept of Biotech, KAHE	Feb 27-28 2019
Module 5.	Molecular Modelling	Dr.T.Sivaraman Professor, Dept of Biotech, KAHE	Mar 7-8, 2019

VENUE

The workshop will be held at the Central Instrumentation Facility, KAHE, Eachanari-Post, Pollachi Main Road, Coimbatore – 641 021.

WHO NEEDS IT ?

University faculty fellows and young scientists interested in demonstrating / doing analytical techniques in their classes / studies will be greatly benefited from this Workshop. The training is specifically planned and geared for the participants to have 'hands on' workshop in these techniques in the lab in front of the instruments. Class size is limited to ensure an ideal learning environment and for personalized attention

REGISTRATION FEE

The training programme restricted to 25 participants in each module (first cum first basis).

Student participant Rs. 500/- (covers Training manual, working lunch and refreshments)

The participants can pay the registration fee through a crossed bank draft drawn in favor of '**Karpagam Academy of Higher Education**', payable at Coimbatore and shall send the same along with the duly filled registration form on or before dead line of each module to the correspondence mentioned below.

Last dates to apply of the modules

Module – 1	20.12.2018
Module – 2	25.01.2019
Module – 3	08.02.2019
Module – 4	20.02.2019
Module – 5	01.03.2018

CORRESPONDENCE

Dr. A. Sangilimuthu - Organizing Secretary
Integrated Workshops on Advance Biotechnology Techniques
Department of Biotechnology, FASH | Central Instrumentation Facility
Karpagam Academy of Higher Education
Eachanari (Post), Pollachi Main Road, Coimbatore - 641021.
E-mail: sangilimuthu.a@kahedu.edu.in & smuthu.al@gmail.com
Phone: +91-9047298492

Training Schedule – Module 1
(Volatile molecule analysis by Gas chromatography)

Day 1 (03.01.2019)		
9.30 – 10.00 AM	Registration	
10.00-10.15 AM	Inauguration	
10.15 – 11.30 AM	Theory session	Volatile Preparation of sample from natural sources and applications
11.30 - 11.45 Am	Tea Break	
11.45-1.00 PM	Practical session	Volatile Sample preparation by Clevenger apparatus and demonstration
1.00 – 2.00 PM	Lunch Break	
2.00 – 3.00 PM	Practical session	Sample analysis by TLC
3.00 – 4.00 PM	Discussion session and result analysis	
Day 2 (04.01.2019)		
10.00 – 11.00	Theory session	Gas chromatography principles and functions
11.15 – 11.30 AM	Tea Break	
11.00 – 1.00 PM	Practical session for Batch I	GC sample analysis
1.00 – 2.00 PM	Lunch Break	
2.00 – 3.30 PM	Practical session for Batch II	GC sample analysis
3.30-4.00	Discussion session and result analysis	
Valediction and certificate distribution		

Training Schedule – Module 2
(Functional properties of biomolecules analysis by FT-IR)

Day 1 (30.01.2019)		
9.30 – 10.00 AM	Registration	
10.00-10.15 AM	Inauguration	
10.15 – 11.30 AM	Theory session	Preparation of sample from natural sources and applications
11.30 - 11.45 Am	Tea Break	
11.45-1.00 PM	Practical session	Sample preparation by Soxhlet apparatus and demonstration
1.00 – 2.00 PM	Lunch Break	
2.00 – 3.00 PM	Practical session	Sample analysis by TLC
3.00 – 4.00 PM	Discussion session and result analysis	
Day 2 (31.01.2019)		
10.00 – 11.00	Theory session	FT- IR Analysis principles and functions
11.15 – 11.30 AM	Tea Break	
11.00 – 1.00 PM	Practical session for Batch I	FT- IR Analysis
1.00 – 2.00 PM	Lunch Break	
2.00 – 3.30 PM	Practical session for Batch II	FT- IR Analysis
3.30-4.00	Discussion session and result analysis	
Valediction and certificate distribution		

Training Schedule – Module 3
(Heavy Metal Analysis by AAS)

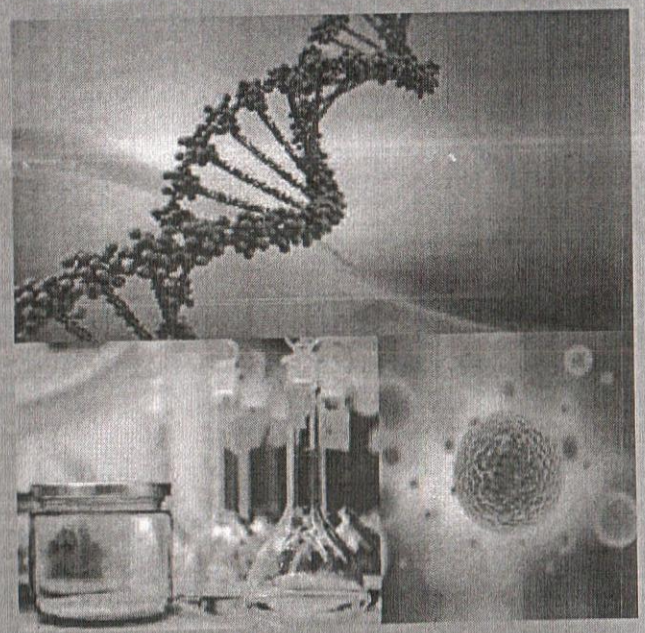
Day 1 (14.02.2019)		
9.30 – 10.00 AM	Registration	
10.00-10.15 AM	Inauguration	
10.15 – 11.30 AM	Theory session	Preparation of sample from natural sources and applications
11.30 - 11.45 Am	Tea Break	
11.45-1.00 PM	Practical session	Sample preparation by Soxhlet apparatus and demonstration
1.00 – 2.00 PM	Lunch Break	
2.00 – 3.00 PM	Practical session	AAS optimization
3.00 – 4.00 PM	Discussion session and result analysis	
Day 2 (15.02.2019)		
10.00 – 11.00	Theory session	AAS Analysis principles and functions
11.15 – 11.30 AM	Tea Break	
11.00 – 1.00 PM	Practical session for Batch I	AAS Analysis
1.00 – 2.00 PM	Lunch Break	
2.00 – 3.30 PM	Practical session for Batch II	AAS Analysis
3.30-4.00	Discussion session and result analysis	
Valediction and certificate distribution		

Training Schedule – Module 4
(Gene Amplification by PCR)

Day 1 (27.02.2019)		
9.30 – 10.00 AM	Registration	
10.00-10.15 AM	Inauguration	
10.15 – 11.30 AM	Theory session	DNA isolation and purity checking PCR principle and applications
11.30 - 11.45 Am	Tea Break	
11.45-1.00 PM	Practical session	DNA amplification by PCR
1.00 – 2.00 PM	Lunch Break	
2.00 – 3.00 PM	Theory session	Agarose gel electrophoresis
3.00 – 4.00 PM	Discussion session and result analysis	
Day 2 (28.02.2019)		
10.00 – 11.00	Theory session	DNA amplification by PCR and its applications
11.15 – 11.30 AM	Tea Break	
11.00 – 1.00 PM	Practical session for Batch I	Agarose gel electrophoresis of amplified DNA
1.00 – 2.00 PM	Lunch Break	
2.00 – 3.30 PM	Practical session for Batch II	Agarose gel electrophoresis of amplified DNA
3.30-4.00	Discussion session and result analysis	
Valediction and certificate distribution		

Training Schedule – Module 5
(Molecular Modeling)

Day 1 (7.03.2019)		
9.30 – 10.00 AM	Registration	
10.00-10.15 AM	Inauguration	
10.15 – 11.30 AM	Theory session	Applications of Bioinformatics in Biology
11.30 - 11.45 Am	Tea Break	
11.45-1.00 PM	Practical session	Retrieving primary sequences and structural analysis
1.00 – 2.00 PM	Lunch Break	
2.00 – 3.00 PM	Practical session	BLAST Analysis
3.00 – 4.00 PM	Discussion session and result analysis	
Day 1 (8.03.2019)		
10.00 – 11.00	Theory session	Marvels of Bioinformatics
11.15 – 11.30 AM	Tea Break	
11.00 – 1.00 PM	Practical session	Homology modelling and structural validations
1.00 – 2.00 PM	Lunch Break	
2.00 – 3.30 PM	Practical session	Molecular visualization tools
3.30-4.00	Discussion session and result analysis	
Valediction and certificate distribution		



Report on

Integrated Workshops on Advance Biotechnology Techniques
Module 1 : "Volatile molecule analysis by Gas Chromatography"

January 03-04, 2019

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(Established Under Section 3 of UGC Act, 1956)

Central Instrumentation Facility (CIF)

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Department of Biotechnology,

Faculty of Arts, Science and Humanities

Karpagam Academy of Higher Education

Coimbatore, Tamil Nadu

Organizing Secretary:

Dr.A.Sangilimuthu, Assistant Professor, Department of Biotechnology, KAHE, Cbe.

About the workshop:

Module 1. Volatile molecule analysis by Gas chromatography has 2 days hands on training provided to the individuals/students regarding the GC sample preparation and analysis using modern techniques. Metabolite fingerprint is the fast growing field in the biochemistry stream. Through metabolites identification and composition of natural material has vide application in food and pharma industries. This training covered the extraction of essential oil from natural source and gas chromatography analysis of volatile molecules with existing standards.

Day 1: (03.01.2019)

Session 1: Theory session about the isolation and applications of phytomolecules.

Session 2 : Isolation of essential oil from lemon leaves using Clevenger apparatus.

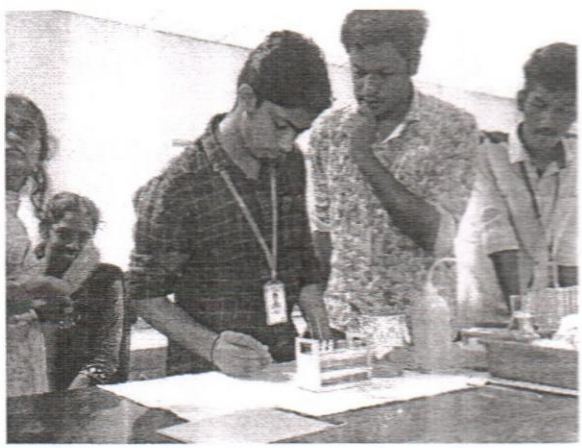
Day 2: (04.01.2019)

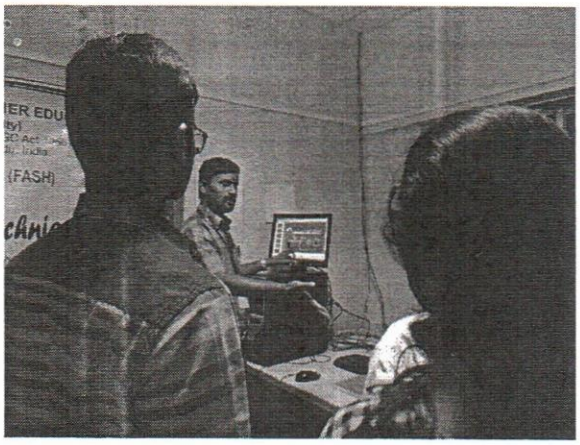
Session 1 : Theory about gas chromatography and applications

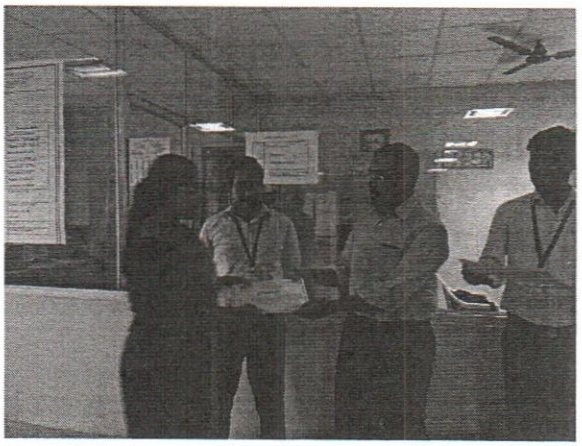
Session 2: Method creation and analysis of isolated essential oil by Gas chromatography by the participants individually.

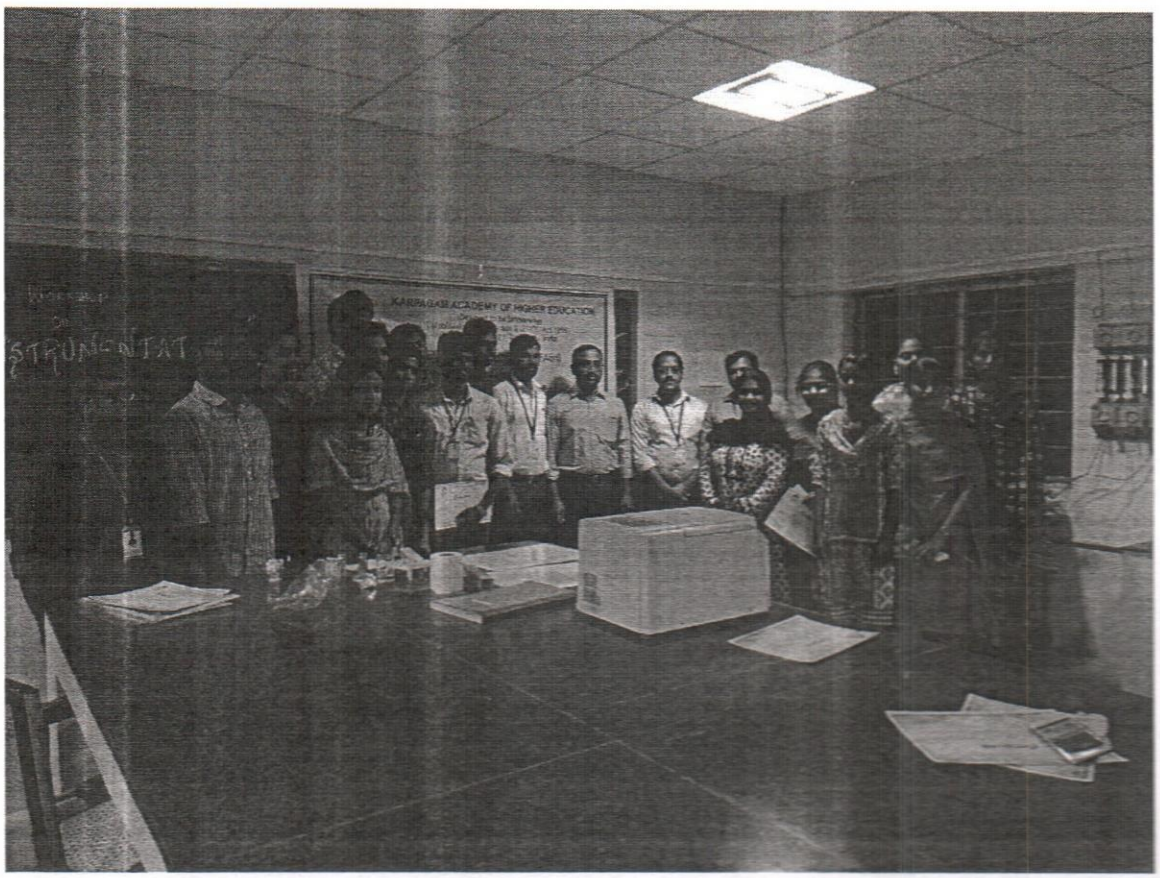
Totally 16 participants were registered (expected 20) from Dr. NGP Arts and Science College, Dr.G.R.Damodaran College of Science and Hindusthan College of Arts and Science, Coimbatore. From the participants we received **good feedback about the training session and theory session and they are satisfied with the practical explanation**. Among them some of the participants were **impressed with our laboratory facility because we were provided the facilities (sophisticated equipments) to UG/PG levels of our students.** So they expressed their **interest to join their higher studies in our institution.**

Day 1 & 2 hands on session, certificate distribution - Photographs









Finally received the feedback from the participants in prescribed format, certificate distribution has made by Dr.B.V.Pradeep, Head, Department of Microbiology and Dr.G.R.Prabu, Head (i/c), Department of Biotechnology to the participants and windup the hands on session.

3.3.2 (134)

Report on

Integrated Workshops on Advance Biotechnology Techniques
Module 2 : 'Functional Properties of Biomolecule by FT-IR'

January 30-31, 2019

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Central Instrumentation Facility (CIF)

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Department of Biotechnology,

Faculty of Arts, Science and Humanities

Karpagam Academy of Higher Education

Coimbatore, Tamil Nadu

Organizing Secretary:

Dr.A.Sangilimuthu, Assistant Professor, Department of Biotechnology, KAHE, Cbe.

About the workshop:

Module 2 : Functional properties of biomolecules analysis by Fourier Transform Infra red spectroscopy (FT-IR) provides a keen knowledge to understand the chemical functional properties of isolated biomolecules from natural sources. This techniques is a very important technique in a pharmaceutical industries.

Day 1: (30.01.2019)

Session 1: Theory session about the isolation and applications of phytomolecules.

Session 2 : Isolation of essential oil from lemon leaves using Clevenger apparatus.

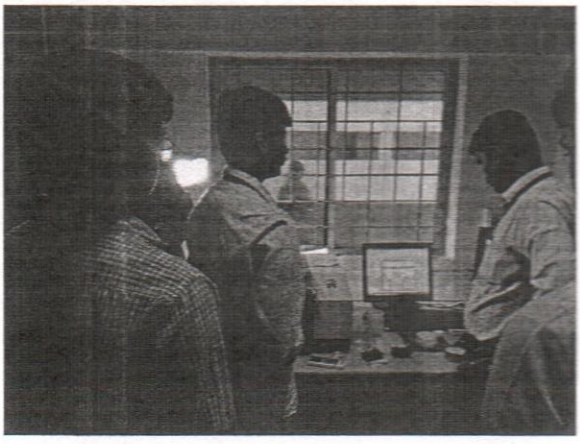
Day 2: (31.01.2019)

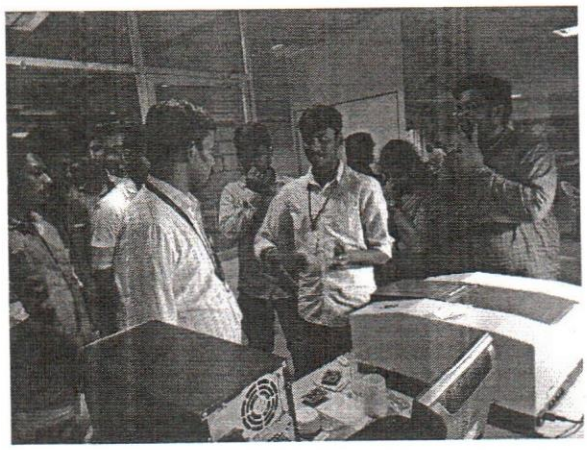
Session 1 : Theory about Fourier Transform Infra red Spectroscopy (FT-IR)

Session 2: Analysis of phytomolecules by Fourier Transform Infra red Spectroscopy (FT-IR) by the participants individually & interpretation.

Totally 11 participants were registered (expected 20) from Sri Krishna Arts and Science College and Dr.G.R.Damodaran College of Science Coimbatore. In this module 2, really the participants were enjoyed the session with pin point explanation and received **good feedback about the training session and theory session and they are satisfied with the practical explanation**. In addition they leant the UV-visible spectrophotometer with their own interest as demo. Especially students came from Sri Krishna Arts and Science College were interested to come their final project as well higher studies in future. In this session all of them came from M.Sc., Biotechnology course and really they have expressed good feedback on hands session.

Day 1 & 2 hands on session, certificate distribution - Photographs





Finally received the feedback from the participants in prescribed format, certificate distribution has made by Dr.G.R.Prabu, Head (i/c), Department of Biotechnology to the participants and windup the hands on session.

3.3.2 (134)

Report on

Integrated Workshops on Advance Biotechnology Techniques
Module 3 : "Elemental Analysis by AAS"

February 14-15, 2019

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(Established Under Section 3 of UGC Act, 1956)

Central Instrumentation Facility (CIF)

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Department of Biotechnology,

Faculty of Arts, Science, and Humanities

Karpagam Academy of Higher Education

Coimbatore, Tamil Nadu

About the workshop:

Module 3. Elemental Analysis by Atomic Absorption Spectroscopy (AAS) provide a idea to measure the heavy metal elements in the given samples. Usually the samples (soil & water) were collected from the agriculture and polluted area. This technique provide a wide range of applications to the participants may use in the agriculture and environment management. To detection of metal elements like Cu, Fe, Zn and Cr in the soil and food sample with the respective lamp in the AAS system.

Day 1: (14.02.2019)

Session 1: Theory session about the preparation of samples and optimization of AAS condition.

Session 2 : Sample preparation to AAS analysis

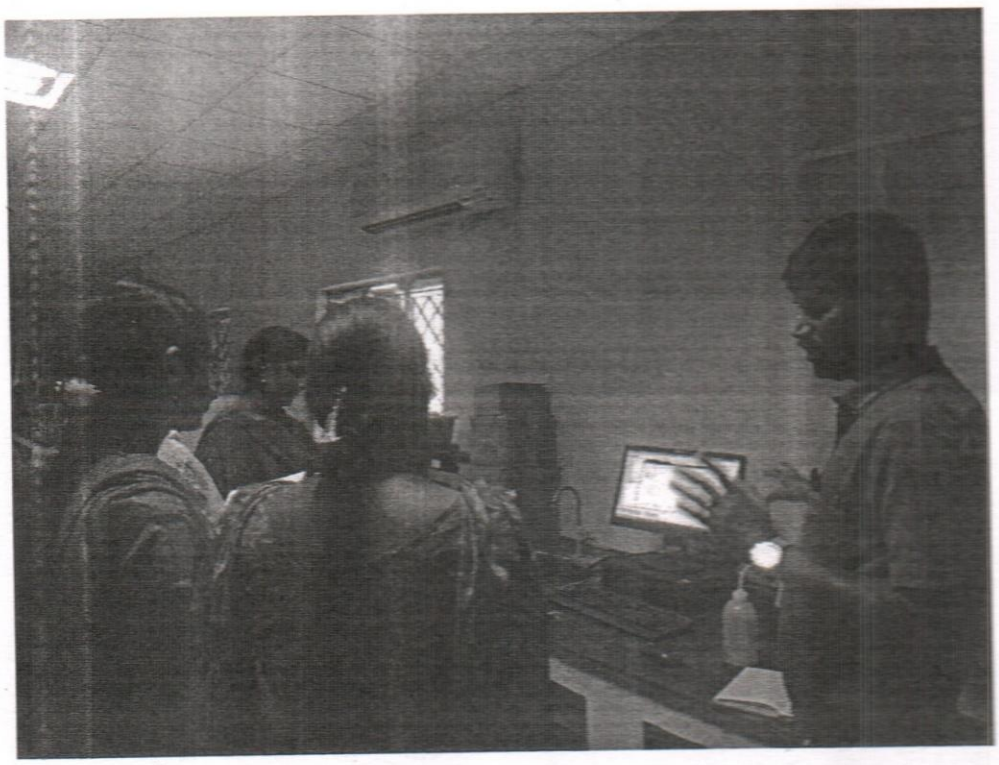
Day 2: (15.02.2019)

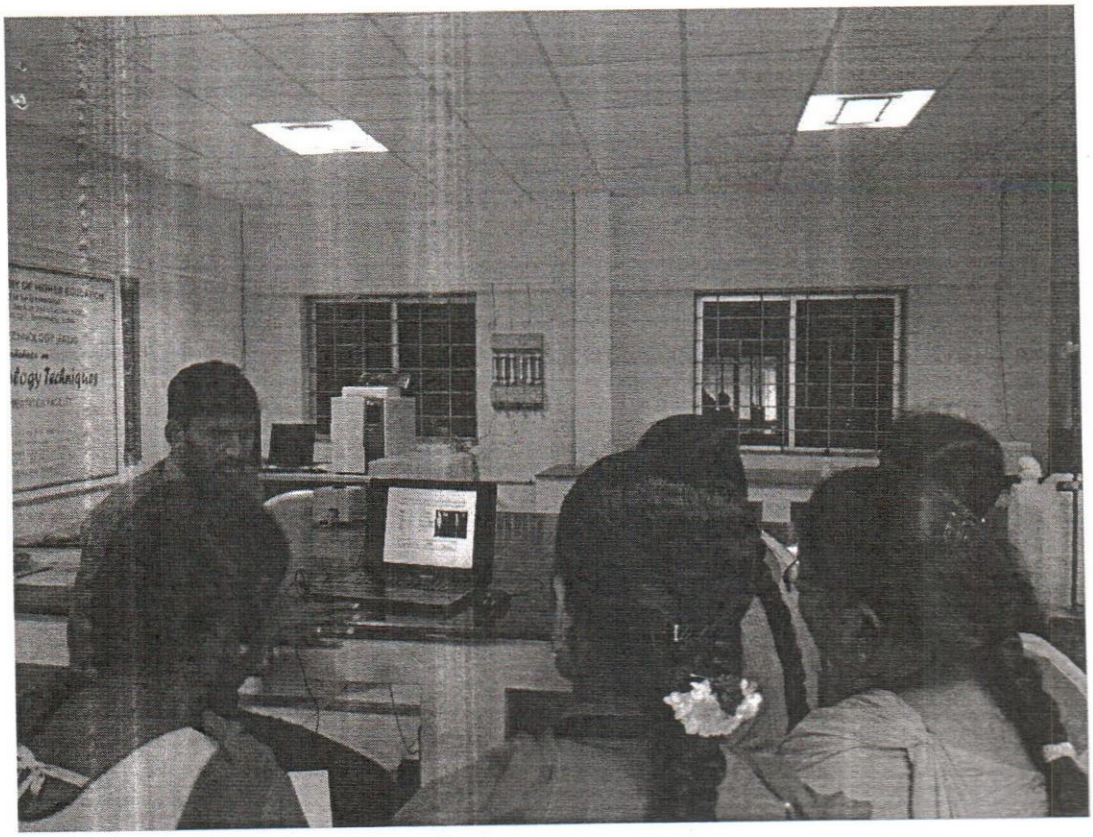
Session 1 : Theory about AAS and its applications

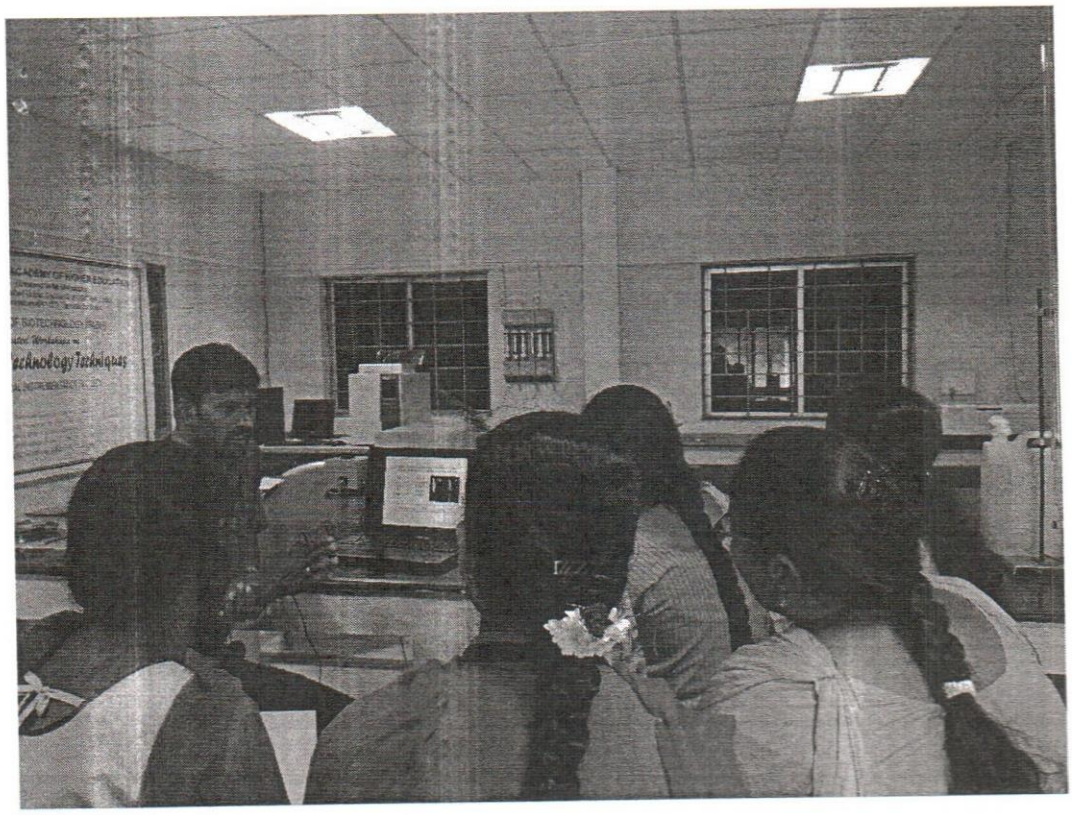
Session 2: Method creation and analysis of samples by AAS

Totally 6 participants were registered (expected 20) from Dr. NGM College, Pollachi and Sri Krishna College of Arts and Science, Coimbatore. From the participants we have received **good feedback about the training session and theory session and they were satisfied with the explanatory session.** Among them some of the participants were **impressed with our laboratory facility because we were provided the facilities (sophisticated equipments) to UG/PG levels of our students.**

Day 1 & 2 hands on session - Photographs







Finally received the feedback from the participants in prescribed format, certificate distribution has made by Dr.B.V.Pradeep, Head, Department of Microbiology to the participants and windup the hands on session.

3.3.2 (134)

Report on

Integrated Workshops on Advance Biotechnology Techniques
Module 4 : 'Gene Amplification by PCR'

27-28 February 2019

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Central Instrumentation Facility (CIF)

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Department of Biotechnology,

Faculty of Arts, Science and Humanities

Karpagam Academy of Higher Education

Coimbatore, Tamil Nadu

About the workshop:

Module 4 : This module deals with DNA amplification of small fragments by using the polymerase chain reaction (PCR). This is the well known technique to identify the organism and their genetic characters. Especially this technique are used in forensic science department. This module includes isolation of fragment of DNA from organism, amplification using primers, conformation check of amplified DNA using agarose gel electrophoresis.

Day 1: (27.02.2019)

Session 1: Theory session about the isolation DNA from microbes

Session 2 : Isolation of DNA from microbes.

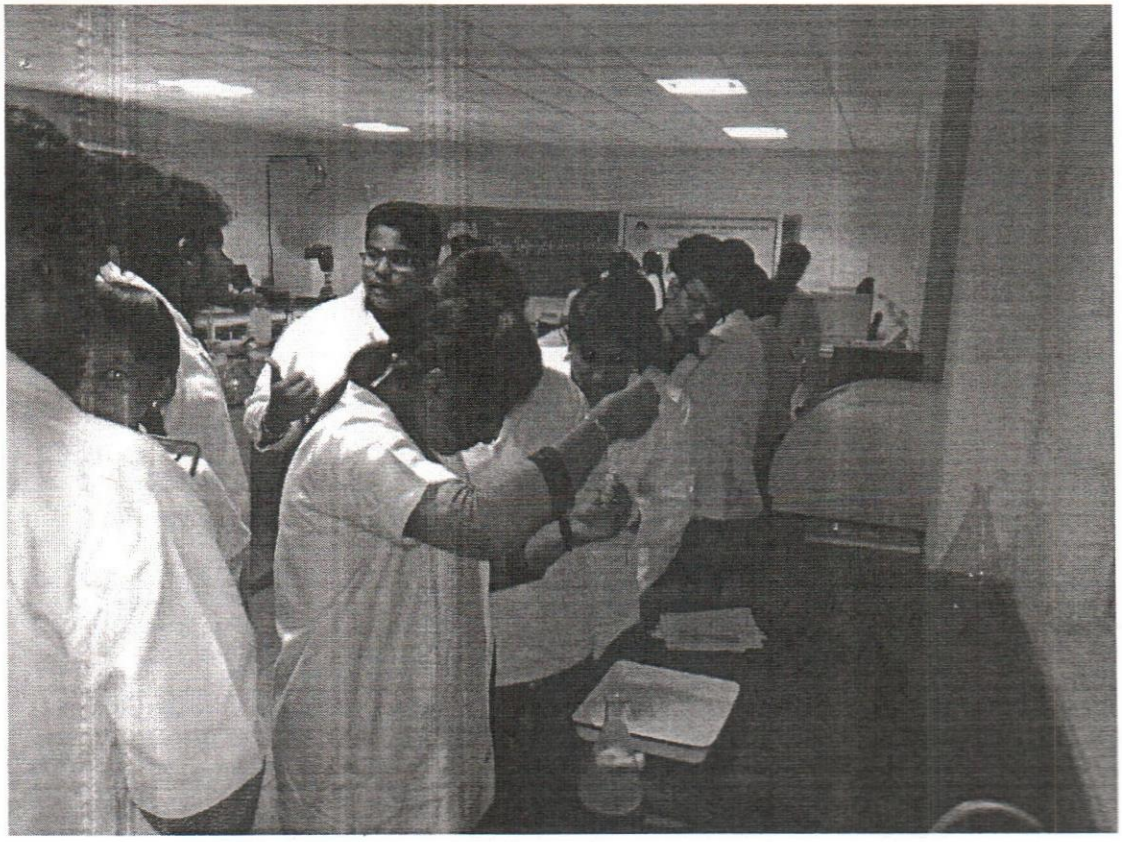
Day 2: (28.02.2019)

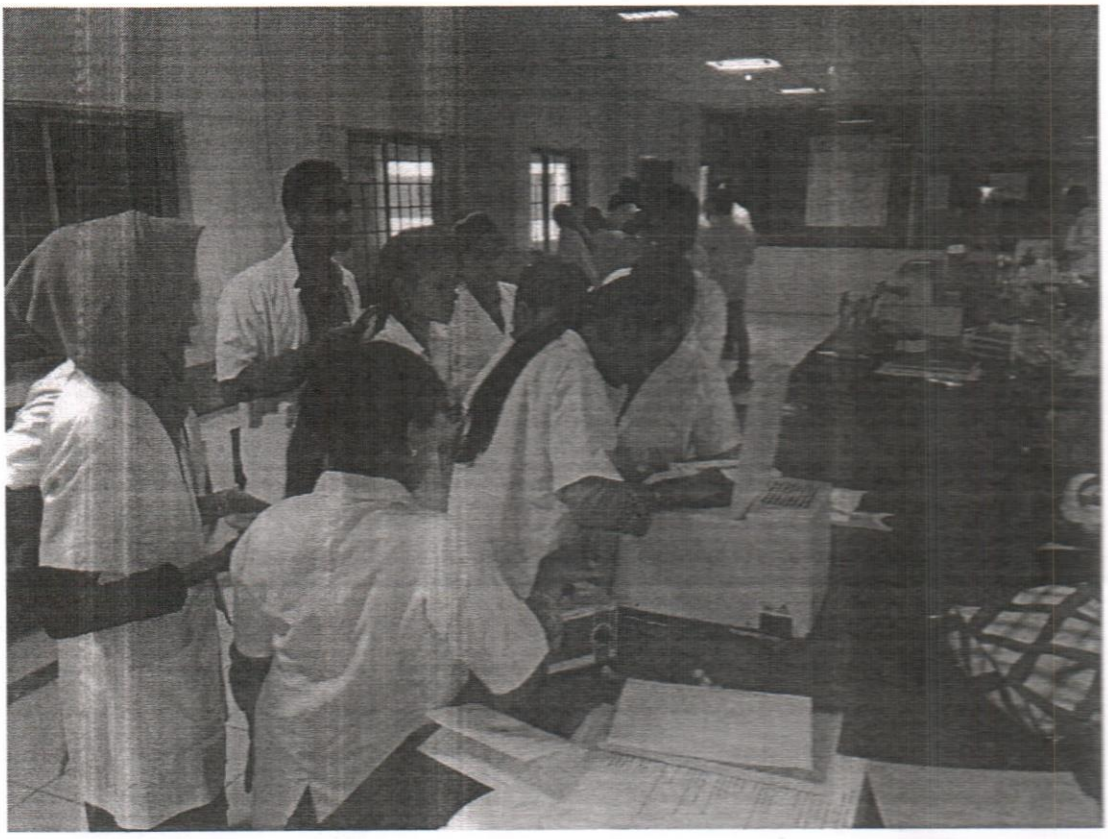
Session 1 : Theory about Gene amplification

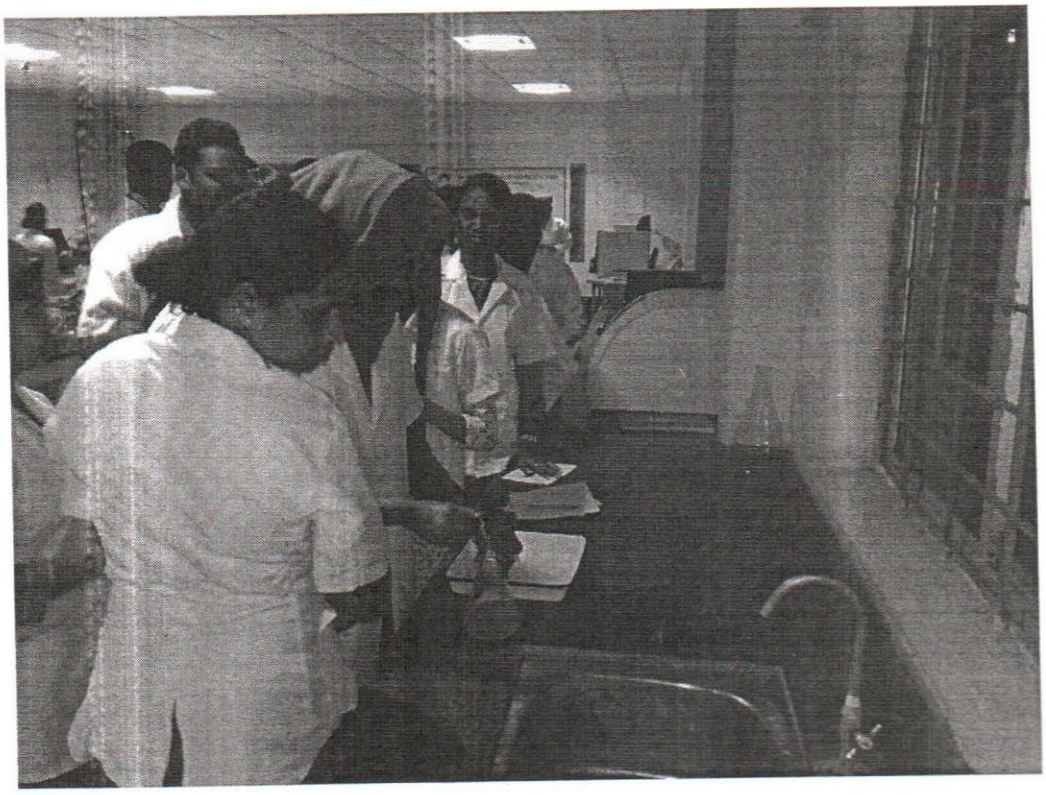
Session 2: Gene amplification by PCR and conformation with agarose gel electrophoresis.

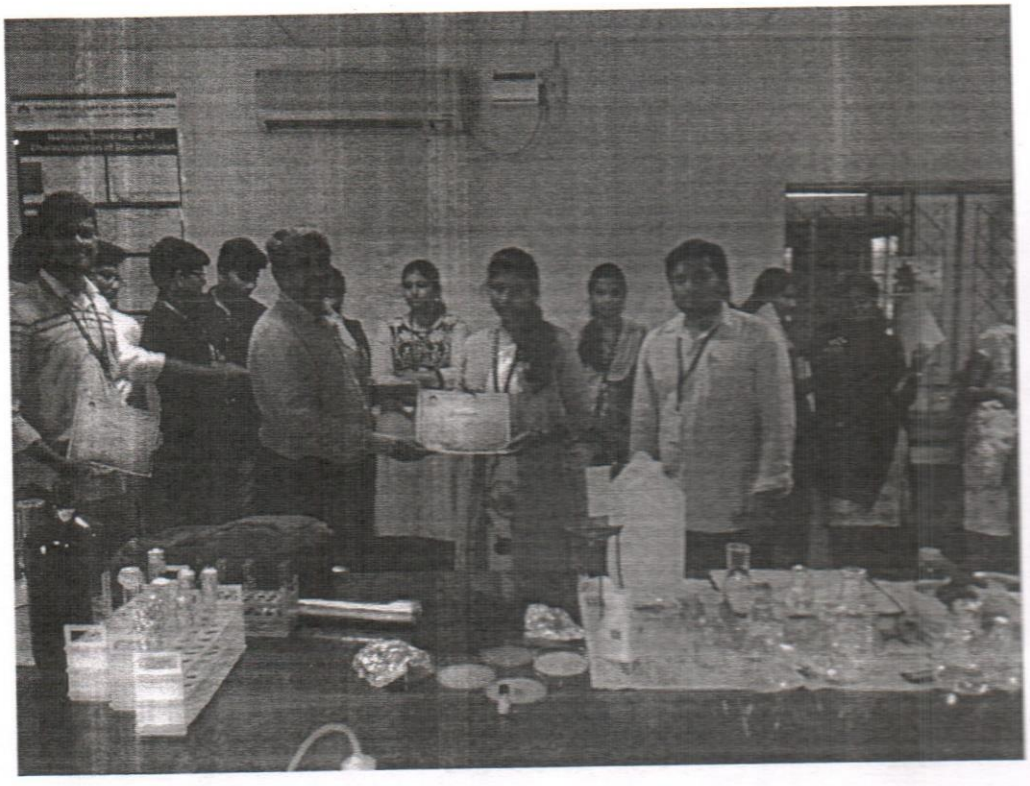
Totally 21 participants were registered (expected 20) from Sri Krishna Arts and Science College, Coimbatore and RVS College of Arts and Science, Coimbatore. Most of them are from Sri Krishna College of Arts and Science due to the good feedback from the 1st and 2nd module attended students from the same college. In this module, the participants were actively participated and given good feedback about the training session and theory session. Student expressed sincere thanks to Dr.A.Sangilimuthu and Dr.S.Barathkumar to organizing such workshop. Finally students expressed their feedback on hands session. Among the participants few of them showed interest to join their higher studies in our organization.

Day 1 & 2 hands on session, certificate distribution - Photographs









Finally received the feedback from the participants in prescribed format, certificate distribution has made by our Dean Dr.M.Palaniswamy, Dean, FASH to the participants and windup the hands on session.