



KS Rangasamy

College of Arts and Science

Autonomous | Tiruchengode

MICROBIOLOGY NEWS LETTER

June 2024-Dec 2024

**Highlights of Department
Activities, Faculty,
Student achievements,
R&D activities**



DEPARTMENT OF MICROBIOLOGY

The Department of Microbiology, an integral part of Centre for Biological Sciences of K.S.Rangasamy College of Arts and Science offers UG, PG and Research Programs in Microbiology and the program started in the Year 1995. The department has a history of unstinted, untiring and meticulous efforts for displaying many spectacular events such as National Seminars, Workshops and training programs. It is well equipped with good infrastructure facility and modern instruments namely PCR, Gel Documentation System, Fermentor etc. The young scholars and students are motivated by eminent guest lectures and hands on experience. The department has a trend setting of research which is exemplified by the reputed publications.

VISION

To produce intellectual mind and professionals through innovative research and inventions for the enhancement of society.

MISSION

To establish overall competence among the students by inculcating energetic thinking and positive spirit.

To cultivate knowledge, skills, values and confidence for the students excellence through research in their area of expertise or interest.

FACULTY MEMBERS



Mr.K.S.Shanmugam
HoD



Dr.K.Selvanayagi



Dr.A.Praveena



Dr.L.Ramkumar



Ms.P.Jeevitha



Ms.T.Suvetha



Ms.M.Hemalatha

STUDENT INDUCTION PROGRAM (27.06.2024)

 **KS Rangasamy**
College of Arts and Science
Autonomous · Tiruchengode

 4 QUALITY EDUCATION

DEPARTMENT OF MICROBIOLOGY

**STUDENT INDUCTION PROGRAMME
ON**

**"JOB OPPORTUNITIES IN GOVERNMENT
SECTORS"**


Ms. P. Ananthi
Forest Guard
Sathyamangalam Tiger Reserve

DATE: 27/06/2024
TIME: 10:00 AM

Convenor
Mr. K. S. Shanmugam
HoD-MB

Patron
Dr. V. Padmanabhan
Principal



Department of Microbiology organized Student Induction Program on 27.06.2024 with Ms.P.Ananthi, Forest guard, Alumni of the Department as a Resource Person. She delivered a lecture on the topic “Job Opportunities in Government Sectors”

ASSOCIATION INAUGURAL (19.07.2024)

Microbiology Department Association “SAMPFICA” Inaugural for the Academic Year 2024-2025 was held on 19.07.2024 and Dr.P.Prabu, Asst. Prof., Dept. of Biotechnology, Periyar University Constituent College, Dharmapuri acted as Guest and Principal Dr.V.Padhamanan Presided over the function.

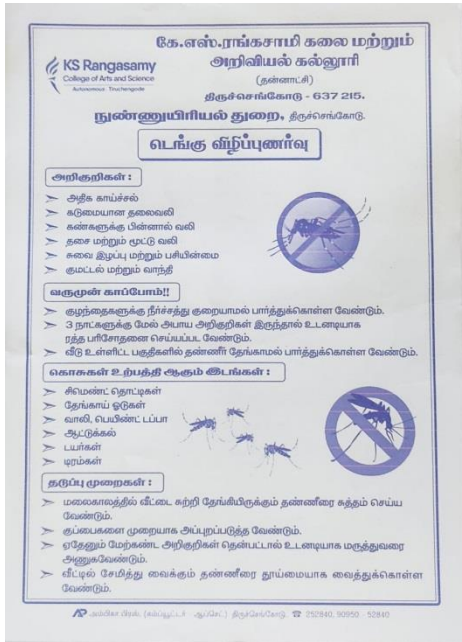


ASSOCIATION OFFICE BEARERS SELECTION



Office Bearers of the SAMPFICA Association and ECO Club for the Year 2024-2025 were selected and they were given the Responsibilities for conducting various activities of the Association, Club and the Department.

EXTENSION ACTIVITY (29.08.2024)



Awareness Program as an Extension Activity was done by the III

B.Sc MB Students on 20.8.2024 at Varagurampatti. They created an Awareness on Road Safety and Dengue by Interaction and supplying tracts to the Public

STUDENTS ACHIEVEMENT

Achievers of Student TNSCST Project (2023-2024) under the guidance of Ms.T.Suvetha, Asst. Prof., Dept. of Microbiology



Akash ARD
M.Sc., Microbiology



Mounisha M
M.Sc., Microbiology



7 students of II M.Sc Presented papers at National Seminar at Salem and 23 students of II M.Sc and II B.Sc Participated in the National Level Workshop at Rasipuram.

STUDENTS ACHIEVEMENTS SPORTS



Ms.S.Ranjani, Mr.G.GowriShankar of III B.Sc MB and Ms.S.Dhakshana of I B.Sc Microbiology has won Various Prizes in Weightlifting, Taekwando , Cricket and in Athletic Events in the University Levels

ECO CLUB ACTIVITIES



ECO-CLUB ORGANIZES

ENVIRONMENTAL AWARENESS
PROGRAMME



Mr. T. RAMKUMAR
Naturalist, Suzhal Arivom



Ms. B. JAYABHARATHI
Naturalist

VENUE : SANGAM HALL
DATE : 13/09/2024
TIME : 09:00 am - 10:30 am

CO-ORDINATOR
Dr. K. Selvanayagi
DEPT. OF MB

PATRON
Dr.V.Padmanabhan
Principal

“Leave the Trees, Cut the Greed.”



Namakkal, Tamil Nadu, India
KSRCCAS, KSR Dental Hospital Rd, Tamil Nadu 637215, India
Lat 11.364031°
Long 77.825628°
13/09/24 09:23 AM GMT +05:30



Namakkal, Tamil Nadu, India
MBA Block, KSR Dental Hospital Rd, Tamil Nadu 637215, India
Lat 11.362849°
Long 77.825652°
13/09/24 11:15 AM GMT +05:30



Namakkal, Tamil Nadu, India
MBA Block, KSR Dental Hospital Rd, Tamil Nadu 637215, India
Lat 11.362851°
Long 77.825649°
13/09/24 11:16 AM GMT +05:30

ECO-Club of our department organizes Environmental Awareness Programme with Mr.T.Ramkumar and Mrs.B.Jayabharathi, Naturalists, Suzhal Arivom delivered speech on the importance of Environment on 13.09.2024 and planted trees in our campus.

INTERNATIONAL MICROORGANISM DAY

KS Rangasamy
College of Arts and Science
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INSTITUTION'S INNOVATION COUNCIL
(Ministry of IHD Initiative)

Great Place To Work
Certified
2022-2024

Department of Microbiology
Celebrates

International Microorganism Day - 2024

Online Quiz Program
17.09.2024 & 18.09.2024

Quiz Link: <https://forms.gle/Nt7h6DwbHLg1yLUY8>

Scan Here

- No Registration Fee
- E Certificate will be send to registered email ID.
- Quiz link will be active on 17.09.2024 @ 06:00 a.m.

For more details: ksrcasmb@gmail.com

Coordinators
Dr. A.Praveena, AP / Microbiology
Ms. P.Jeevitha, AP / Microbiology

Convener
Mr. K.S.Shanmugam
HoD / Microbiology

Patron
Dr. V.Padmanabhan
Principal

IMD 2024
international microorganism day

www.ksrcas.edu

Department of Microbiology celebrates International Microorganism Day - 2024 on 17.09.2024 and 18.09.2024 by conducting Online Quiz Program for the College Students. Nearly 750 Participants from various colleges attended Quiz Program enthusiastically and online certificates were distributed to them.

ALUMNI MEET

Department of Microbiology organized Alumni meet on 21.09.2024.



We welcomed our Alumni to reconnect with each other and to create a network with institution. They shared their experiences and achievements in various fields and also cherish their college life memories with enthusiasm.

SCIENCE AWARENESS SCHOOL PROGRAM



On 16th November 2024, Department of Microbiology conducted an Science Awareness Program at Shri Renga Vidyalaya School, Rayarpalayam. The event was filled with, interactive demonstrations with models and thought provoking speech to create a passion and interest for Life science among students.

RESEARCH & DEVELOPMENT

Chemical Physics Impact 9 (2024) 100763



Contents lists available at ScienceDirect

Chemical Physics Impact

journal homepage: www.elsevier.com/locate/chemphys-impact



Full Length Article

Green synthesis of bimetallic Ag-ZnO nanocomposite using polyherbal extract for antibacterial and anti-inflammatory activity

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^b Department of Botany, TamilBharathiaraj College and Research Institute, Nandikotkur, Tamil Nadu, India

^c Centre for Global Health Research, Sreevalsar Medical College and Hospital, Sreevalsar Institute of Medical and Technical Sciences, Sreevalsar University, Chennai, Tamil Nadu 605 010, India

^d Centre for Herbal Pharmacology and Environmental Sustainability, Chennai Hospital and Research Institute, Chennai Academy of Research and Education, Kolambakuram, Tamil Nadu 603333, India

ARTICLE INFO

Keywords:
Plant extract
Nanoparticle synthesis
Ag-ZnO nanocomposites
Antibacterial activity
Anti-inflammatory potential

ABSTRACT

The current research has involved in developing nanoparticles (NPs) of zinc oxide (ZnO) doped with silver (Ag) through an eco-friendly method. *Eligium prostratum* (EP), *Eligium alba* (EA), and *Ficus prostratum* (FP) are subjected to Soxhlet extraction using ethyl acetate. Alkaloids, flavonoids, and phenols were quantified using standard methods. Polyherbal extract was used to synthesize silver-zinc-oxide nanocomposites (Ag-ZnO NCA) via the sol-gel method. The reduction of metal ions was confirmed by UV-visible spectroscopy, scanning electron microscopy, and thermogravimetric analysis. Polyherbal plants are found to have higher concentrations of phenols, flavonoids, and alkaloids than indigenous plants. Ag-ZnO NCA functional group has been identified using Fourier Transform Infrared Spectroscopy (FTIR) spectroscopy. UV-vis spectroscopy revealed the surface plasmon resonance (SPR) of silver nanoparticles at 463.477 nm and zinc oxide nanoparticles at 266.207 nm. For Ag-ZnO NCA, the SPR peak was observed at 450 nm. Scanning electron microscopy confirmed the spherical morphology of the Ag-ZnO NCA. The anti-microbial activity of the formulated Ag-ZnO NCA was more effective than the extract against all tested pathogens. The most effective antimicrobial activities are achieved for Ag-ZnO NCA at 50 µg and 200 µg for extract. Biosynthesized nanoparticles exhibit a significant anti-inflammatory effect of 66% at a low concentration of 500 µg/ml, greater than the efficacy of diclofenac sodium. Additionally, the synthesized Ag-ZnO nanoparticle demonstrated in stability for 90 days and showed strong antimicrobial properties.

1. Introduction

Numerous metabolites, including phenols, alkaloids, glycosides, saponins, and other compounds, are found in herbs and medicinal plants. The phytochemicals found in herbs are thought to have a wide range of biological activities [1]. The plant-based chemicals contain a wide range of physiologically active molecules and therapeutic capabilities [2-1]. *Eligium* species have been used as medicinal plants, especially in tropical and subtropical areas [1]. Disinfectants, antiseptics, and antimicrobial drugs have been developed to prevent the spreading of numerous infectious diseases. However, due to improper antimicrobial drug usage, the number of microbial strains that are resistant to these therapies have been rising alarmingly. A class of antibiotics that cannot generate

resistance has strong bactericidal activities and also cytotoxic effects are not observed on people and other animals [3]. Nanosized antibiotics have become popular due to their superior longevity and improved antibacterial potency [4]. Nanoparticles are used in health care, sensors, energy-efficient, personal care products, bio-therapeutic devices, cleanup of the environment, textiles, antimicrobial applications, and decontamination of surfaces [7-8]. Zinc oxide nanoparticles (ZnO NPs) and silver nanoparticles (Ag NPs) are the most important for biomedical applications [9-10]. Their high surface-to-volume ratio and small size may influence their superior physiological, chemical, and biological characteristics compared to bulk materials [11-13]. ZnO NPs and Ag NPs demonstrate good antimicrobial activity at incredibly lower concentrations, even against some resistant form of microbes [14-15]. The

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We congratulate Mr.K.S.Shanmugam and Dr.L.Ramkumar for their Research article publication in “Chemical Physics Impact”, a Scopus Indexed Elsevier journal with an impact factor of 3.8. This achievement highlights their commitment to scientific excellence

Two research articles of Dr.K.Selvanayagi and one article of Dr.L.Ramkumar has been accepted for Publication in Bentham Science Publishers, USA. Their work was appreciated

Dr. K.Selvanayagi, Dr.A.Praveena and Dr.L.Ramkumar of our department has submitted TNSCST Major Proposals

II M.Sc Microbiology (25 students) submitted the proposals for TNSCST Students Project-2025

GUIDANCE TO BE AN ENTREPRENEUR

Dr.L.Ramkumar, Asst.Prof, Department of Microbiology has guided the Students in the field of Mushroom Cultivation and the students gained knowledge and by the way of Experiential Learning they executed the procedure and cultivated mushroom



Guidance to be an Entrepreneur

Outcome:

As an outcome of guidance and experiential learning, approximately 10Kgs of Mushroom was harvested



FACULTY CONTRIBUTIONS

NPTEL/ Coursera:

Faculty members are constantly updating their academic excellence by pursuing online certifications

NPTEL Certificates - 3 Faculty members

Courseera certificates - 12

Mr.K.S.Shanmugam, Head, Dept. of Microbiology visited NIFTEM, Tanjore with Principal and Team and obtain Knowledge on food Processing Technologies to inculcate the same knowledge to the students and to develop new ideas for the students project



FACULTY CONTRIBUTIONS

Participations

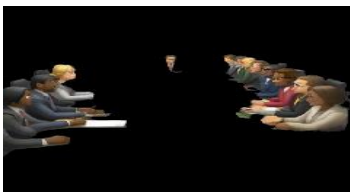
Faculty members enthusiastically participate in various seminars, conferences, FDP and workshops, contributing to professional development and to impart the knowledge to the students.



Seminar - 5



FDP - 12

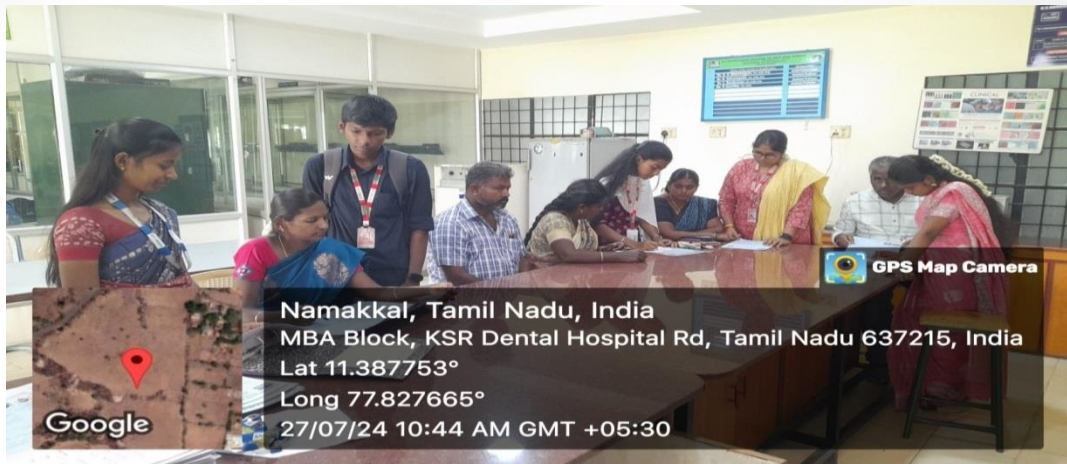


Conferences- 2



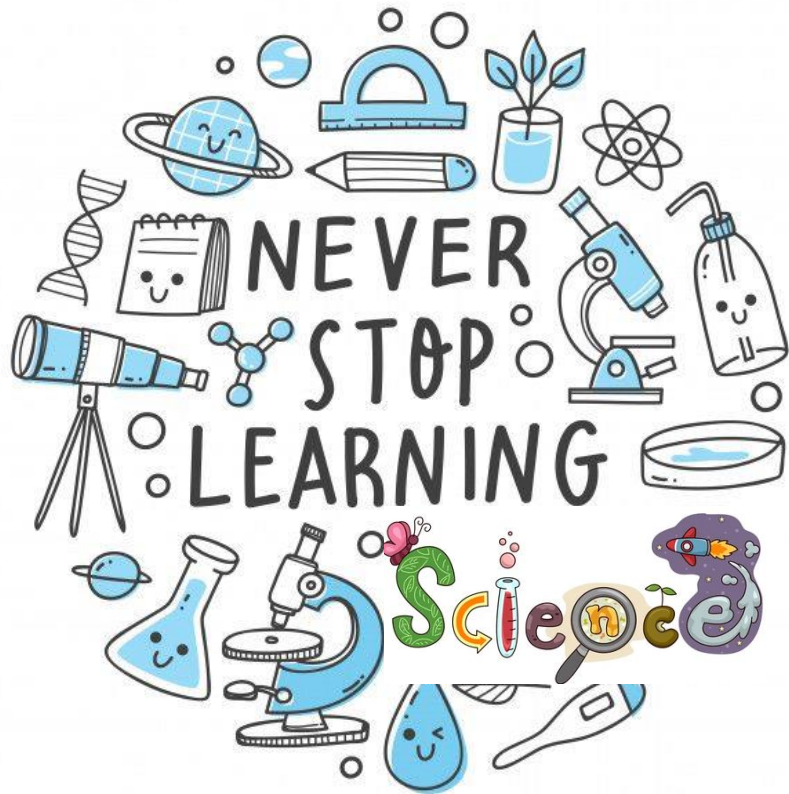
Webinars- 7

PARENTS MEETING



Parents-Teachers Meeting has been organized in the Department of Microbiology to strengthen the academic performance and to discuss any concerns that affect their performance. The faculty highlighted the strength, weakness and also about the students academic progress. The Parents shared their expectations and their concerns. Parents actively participated, providing valuable feedback and suggestions, making the session interactive and productive. The meeting provided an opportunity for the parent and faculty to work together to support the students academic success.

SAMPFICA



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