



## Holy Cross College (Autonomous) Nagercoil – 629 004

Affiliated to Manonmaniam Sundaranar University, Tirunelveli  
Nationally Accredited with A+ Grade (CGPA 3.35) by NAAC IV Cycle  
An ISO 9001:2015 Certified Institution

SSR  
2019-2020  
to  
2023-2024

**3.7.1 Number of functional MoUs/linkages with institutions/ industries in India and abroad for internship, on-the-job training, project work, student / faculty exchange and collaborative research during 2020-2021**

Department of Mathematics

MOU: Aditya Maths Academy

Activity: Internship Programme

Date: 12-02-2021 to 18-02-2021

Beneficiaries: 74



**Department of Mathematics**

**MOU: ECC Academy**

**Activity: Value Added Course on Quick Arithmetic for Competitive Examinations**

**Date: 10-10-2020, 17-10-2020, 24-10-2020, 31-10-2020, 07-11-2020, 14-10-2020, 21-11-2020,  
28-11-2020,**

**05-12-2020 and 12-12-2020**

**Beneficiaries: 92**

**DEPARTMENT OF MATHEMATICS (AIDED)**

**ECC ACADEMY**

**Near Registrar's Offices**

**S.L.B. South Road, Nagercoil-1**

**Offers**

**VALUE ADDED COURSE ON**

**'QUICK ARITHMETIC FOR COMPETITIVE EXAMS'**

**Dates: 10-10-2020,17-10-2020,24-10-2020,**

**31-10-2020, 07-11-2020,14-11-2020,**

**21-11-2020,28-11-2020,05-12-2020,12-12-2020**

**Time: 9.00 am to 3.00 pm**

### **Course Features**

**This course is to promote the employability skills of the students by providing training to face competitive examinations**

### **Certification**

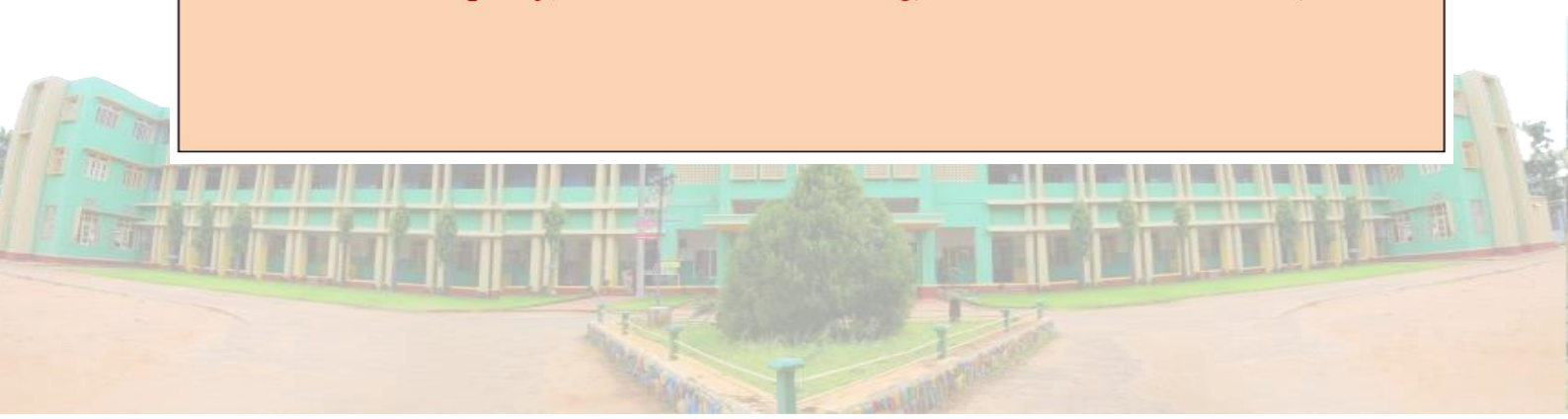
**At the end of the course, exam will be conducted and certificates will be issued to the students.**

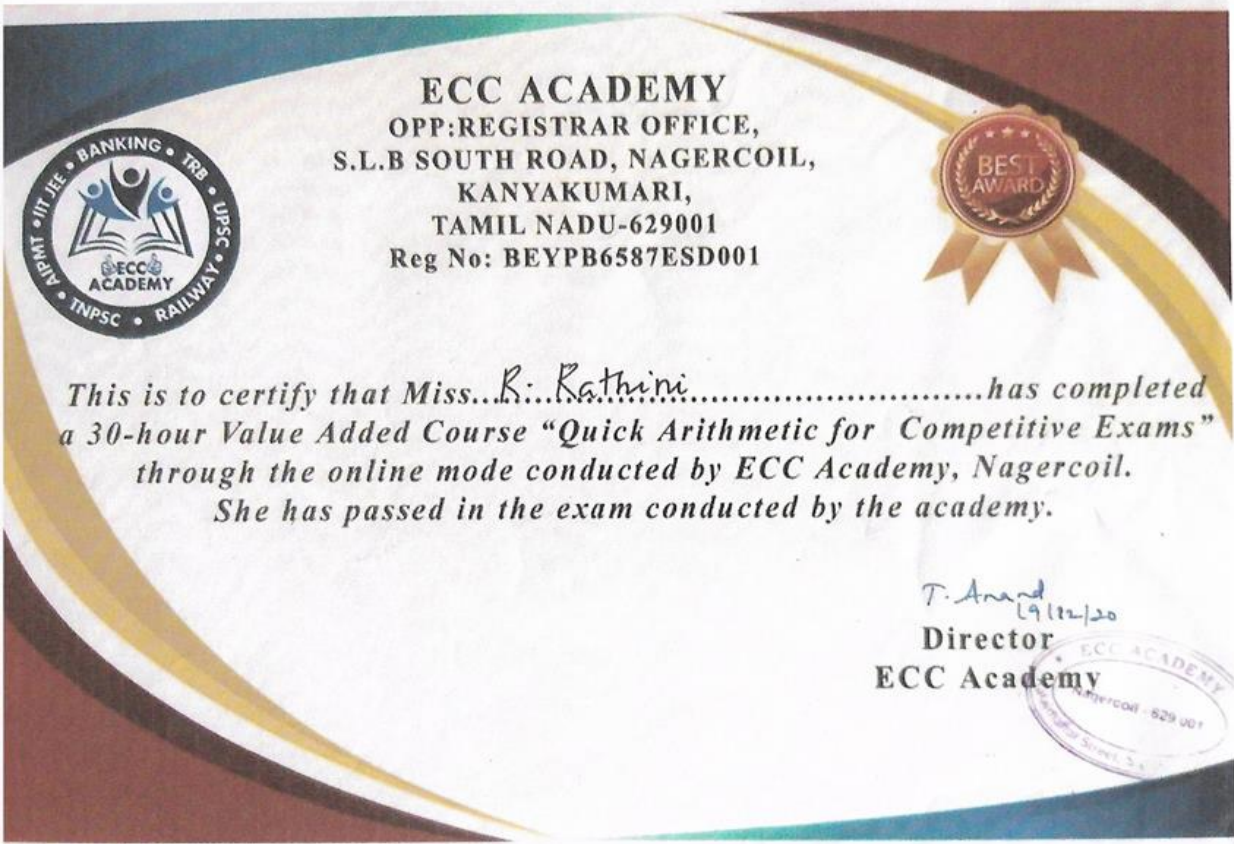
**Patron**

**Course Convener**

**Course Co-ordinator**

**T.Anandha Boopathy, M.Com E.Vasanth Raj, ME P.Jaswin Jeni M.Sc, B.Ed**





**Department of Chemistry**

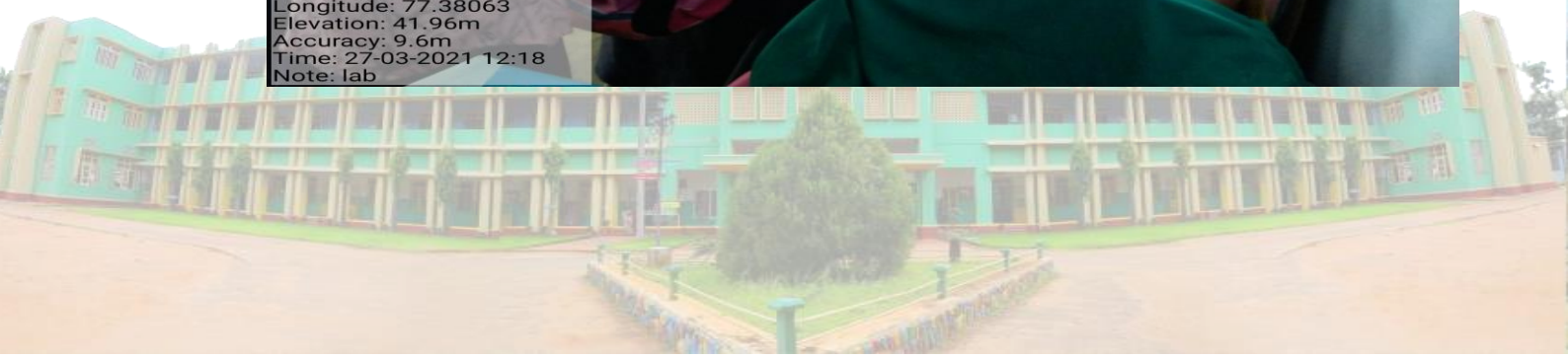
**MOU: St- Xavier's Catholic College of Nursing, Chunkankadai**

**Activity: On the Job Training**

**Date: 27-03-2021**

**Beneficiaries: 42**

Thirty six students from II B.Sc Chemistry along with two staff members visited St. Xavier's Catholic College of Nursing on 27-03-2021 in connection with the Memorandum of Understanding (MOU) obtained from the institution. Mrs. Vijila Christy delivered a comprehensive talk on blood grouping, highlighting antigens and antibodies present in blood. This was followed by a practical demonstration of blood grouping and blood analysis. The students, eager to understand their blood group, actively participated in the testing. Furthermore, an informative session on urine analysis was conducted, covering its uses and limitations. The types of urine analysis, including chemical, macroscopic, and microscopic, were explained to the students. Additionally, an awareness talk on breast cancer was provided, offering clear insights into maintaining one's health.



Department of Zoology

MOU: Centre for Marine Science and Technology

Activity: Joint Author Paper

Date: 30-08-2020

Beneficiaries: 2



ISSN: 2319-9490

Available online at <http://www.ijcrls.com>

International Journal of Current Research in Life Sciences  
Vol. 09, No. 08, pp.3311-3314, August, 2020



## RESEARCH ARTICLE

### COMPARATIVE ANALYSIS OF THE ANTIMICROBIAL POTENTIAL OF HEMOLYMPH AND HEMOLYMPH LECTIN OF THE MARINE CRAB *GRAPSUS TENUICRUSTATUS*

Rathika R K.<sup>1,\*</sup>, Mary Metilda Bai S.<sup>1</sup>, Vinoliya Josephine Mary J.<sup>1</sup>, Citarasu T.<sup>2</sup> and Vargila F.<sup>1</sup>

<sup>1</sup>Department of Zoology, Holy Cross College (Autonomous), Nagercoil- 629 004

<sup>2</sup>Centre for Marine Science and Technology, Manonmaniam Sundaranar University, Tirunelveli

Received 27<sup>th</sup> June, 2020; Accepted 16<sup>th</sup> July, 2020; Published 30<sup>th</sup> August, 2020

#### ABSTRACT

Marine crabs are potential sources of new antibiotics as the circulating hemolymph contains biologically active substances such as complements, lectins, clotting factors and antimicrobial peptides. The present study was focused on evaluation of antimicrobial potential of the hemolymph and the lectin isolated from the hemolymph of marine crab *Grapsus tenuicrustatus*. The antimicrobial activity of crude hemolymph, clarified serum and purified lectin of the experimental crab was tested by disc diffusion method. The hemolymph exhibited higher activity than clarified serum and purified lectin. Maximum activity of 14 mm was recorded against *Pseudomonas aeruginosa*. Antimicrobial activity was also observed against other tested bacteria such as *Bacillus subtilis*, *Staphylococcus aureus*, *Enterobacter aerogenes* and *E. coli*. Among the fungal strains tested maximum activity of 13 mm and 15 mm was recorded with hemolymph and clarified serum against *Aspergillus niger*. The results indicate the antimicrobial efficiency of the hemolymph and the lectin and hence these would be considered as good source of antimicrobial agents and would replace the existing inadequate and cost effective antibiotics.

**Key words:** Lectin, *Grapsus Tenuicrustatus*, Hemolymph, Antimicrobial, Gram Positive and Gram Negative.

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Citation: Rathika R K., Mary Metilda Bai S., Vinoliya Josephine Mary J., Citarasu T. and Vargila F. 2020. "Comparative analysis of the antimicrobial potential of hemolymph and hemolymph lectin of the marine crab *grapsus tenuicrustatus*" *International Journal of Current Research in Life Sciences*, 09, (08), 3311-3314

#### INTRODUCTION

Marine crabs are potential sources of new antibiotics as the circulating hemolymph in marine crustaceans contains biologically active substances such as complements, lectins, clotting factors and antimicrobial peptides (Veenuraj et al. 2008). Agglutinins or lectins are conventionally defined as glycoproteins of non-immune origin with a remarkable ability to interact with specific carbohydrate structures present on cell surfaces, extracellular matrices or secreted glycoproteins (Goldstein et al. 1980). Lectins defend against pathogenic bacteria and fungi by recognizing and immobilizing the infecting microorganisms via binding to carbohydrates on microbial surfaces, thereby preventing their subsequent growth and multiplication (Oadir et al. 2013) and considered as potent antimicrobials. Antimicrobial mechanisms of lectins include the pore formation ability, followed by changes in the cell permeability and latter, indicates interactions with the bacterial cell wall components. In addition, the antimicrobial activity of lectins is associated with the chitin-binding property, resulting in the disintegration of the cell wall or the arrest of de novo synthesis of the cell wall during development or division.

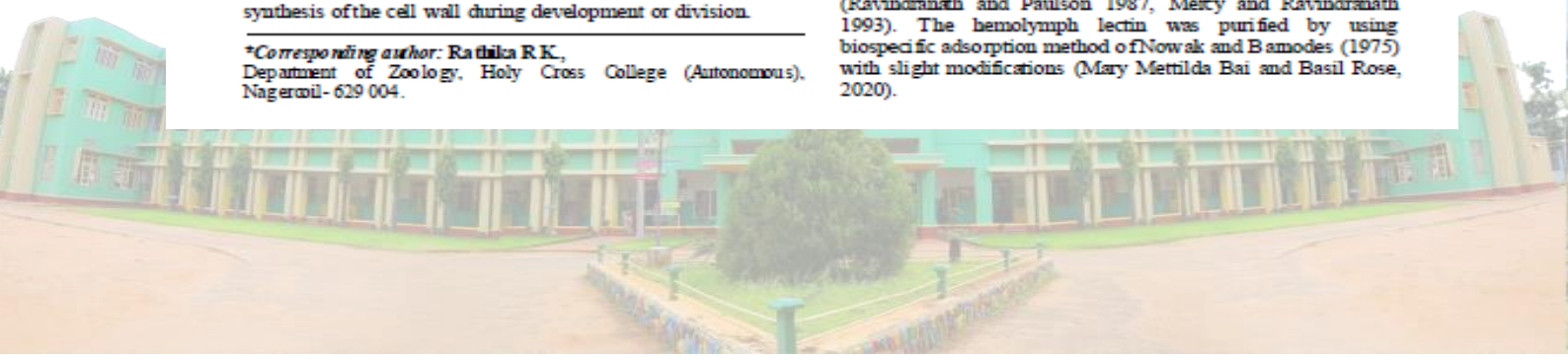
Hence the present investigation was taken up to study the antimicrobial activity of the hemolymph and lectin isolated from the hemolymph of an interesting brachyuran crabs, the sally light foot crab or natal sally light foot or shore crab, *Grapsus tenuicrustatus* against few bacterial and fungal strains.

#### MATERIALS AND METHODS

**Animal Collection:** The marine crab *Grapsus tenuicrustatus* were collected from Kadiyapattanam (8.1262°N latitude and 77.3196°E longitude) and Muttom (37.6428°N latitude and 78.3924°E longitude) coasts, Kanyakumari, Tamilnadu, India.

**Sample Preparation:** Hemolymph, serum and the hemolymph lectin were the samples used for this study. Hemolymph from the crab was collected and then the serum was prepared (Mercy and Ravindranath, 1993). The presence of agglutinin/lectin in the hemolymph was identified by hemagglutination (HA) and hemagglutination inhibition (HAI) assays (Ravindranath and Paulson 1987, Mercy and Ravindranath 1993). The hemolymph lectin was purified by using biospecific adsorption method of Nowak and Bamodes (1975) with slight modifications (Mary Metilda Bai and Basil Rose, 2020).

\*Corresponding author: Rathika R K.,  
Department of Zoology, Holy Cross College (Autonomous),  
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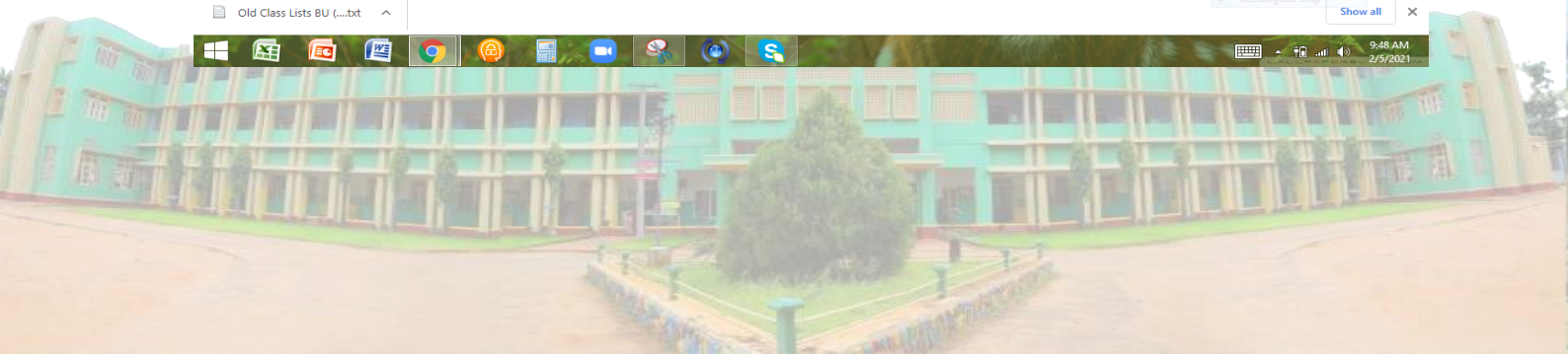
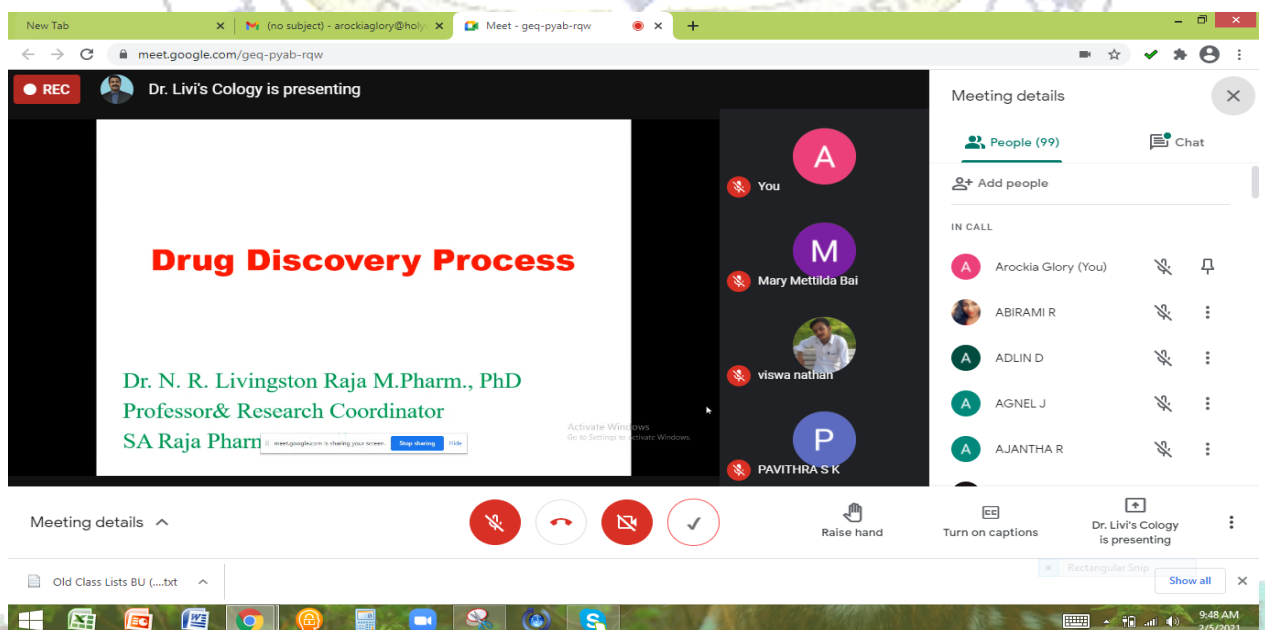
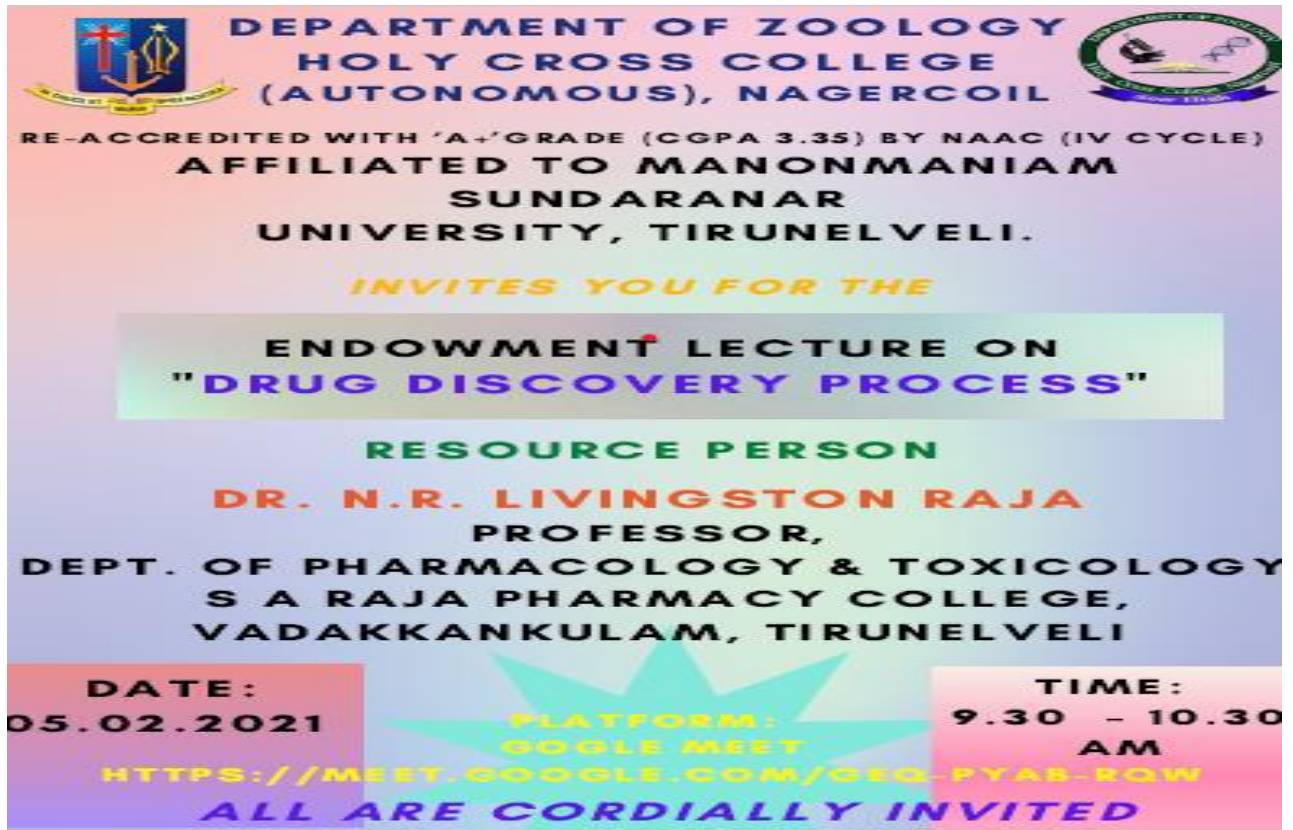
Department of Zoology

MOU: S.A. Raja Pharmacy College, Vadakkankulam

Activities: Endowment Lecture - Talk on "Drug discovery process"

Date: 05-02-2021

Beneficiaries: 125



Department of Zoology

MOU: Foundation for Innovative Research in Science and Technology, Nagercoil

Activities: Research

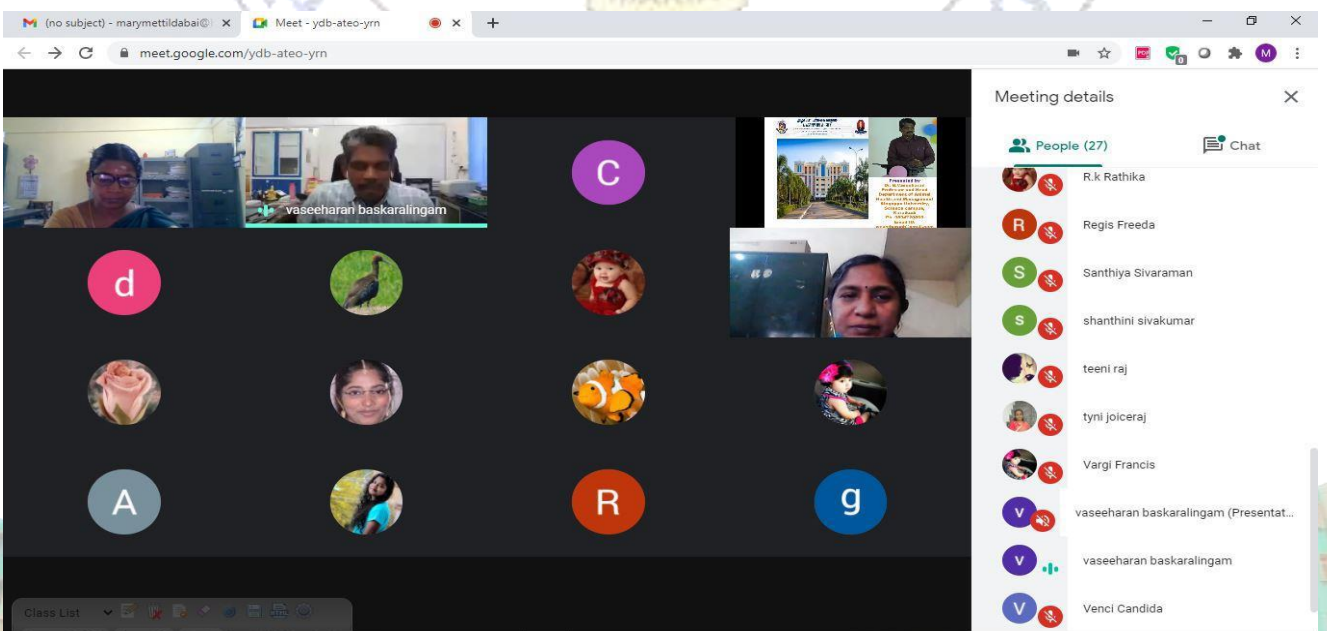
Colloquium on “Research Innovations in Nanopharmacology”

Date: 11-11-2020

Beneficiaries: 48



The poster for the HCC-FIRST Research Colloquium features logos of Holy Cross College and FIRST at the top. The main title is "HCC-FIRST Research Colloquium" in large red letters. Below it, the text states: "The Department of Zoology, Holy Cross College, is glad to organise an event entitled 'HCC-FIRST Research Colloquium' in collaboration with FIRST (Foundation for Innovative Research in Science and Technology) on Wednesday, the 11<sup>th</sup> November 2020 which will be conducted through Google meet." It further explains that the colloquium is part of a MoU between the Department of Zoology, Holy Cross College & FIRST, Nagercoil. The topic is "Research Innovations in Nanopharmacology" and the resource person is Dr. B. Vaseeharan, Professor & Head, Department of Animal Health & Management, Alagappa University, Karaikudi. The date and time are 11.11.2020; Time: 10.30 am – 11.30 am. It is open to scholars and faculty, and a cordial invitation is extended to all. The Google Meet link is <https://meet.google.com/ydb-ateo-yrn> and the meeting code is ydb-ateo-yrn. The poster is decorated with DNA helix and pill icons.



The screenshot shows a Google Meet interface during a session. The main window displays a grid of participants, including a video feed of Dr. B. Vaseeharan Baskaralingam. A sidebar on the right shows the "Meeting details" for "People (27)", listing participants such as R.k Rathika, Regis Freeda, Santhiya Sivaraman, shanthini sivakumar, teeni raj, tyni joiceraj, Vargl Francis, vaseeharan baskaralingam (Presentat...), vaseeharan baskaralingam, and Venci Candida. The browser address bar shows the URL [meet.google.com/ydb-ateo-yrn](https://meet.google.com/ydb-ateo-yrn).

Department of Zoology

MOU: Centre for Excellence in Genomic Sciences, Madurai Kamaraj University

and Department of Immunology, School of Biological Sciences, Madurai Kamaraj University

Activities: National level E-Conference on “Regenerative Medicine & Psychoneuroimmunology”

Date: 16-07-2020

Beneficiaries: 172



**Department of Zoology**  
**Holy Cross College (Autonomous), Nagercoil**  
Re-accredited with 'A+' Grade (CGPA 3.35) by NAAC (IV cycle)  
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**Date: 16.07.2020**      **National level E-Conference on**      **Time: 10.00 am - 12.00 noon**  
**"Regenerative Medicine & Psychoneuroimmunology"**

**Patron:**  
Dr. Sr. Gerardin Jayam,  
Secretary

**Chairperson:**  
Dr. Sr. Anne Perpet Sophy,  
Principal

**Convener:**  
Dr. S. Mary Mettilda Bai,  
Head of the Department

**Organising Secretaries:**  
Dr. J. Vinoliya Josephine  
Mary & Dr. A. Punitha

**Organising Members:**  
Dr. F. Brisca Renuga  
Dr. A. Shyla Suganthi  
Dr. P.T. Arokya Glory  
Dr. Jeni Chandar Padua  
Dr. C. Josephine Priyatharshini  
Dr. X. Venci Candida  
Dr. S. Prakash Shoba  
Dr. C. Anitha

**Resource Persons & Topics**  
**Dr. Giridharan Appaswamy,**  
*Chief Scientific Officer,*  
Lifecell International Private Limited, Chennai.  
**Topic: Stem cells In Regenerative Medicine**



**Dr. M. Jayalakshmi,**  
*Assistant Professor, Department of Immunology,*  
School of Biological Sciences, Madurai Kamaraj University.  
**Topic: Psychoneuroimmunology and the Minds  
impact on Health**



**Registration Free, E-Certificate will be provided**  
**Meeting link to the e-Conference will be sent to the registered e-mail id**  
**For Registration click the link: <https://forms.gle/bvEQi7UU3YrzQMLn7>**  
**Contact Numbers: 9940772468, 8903446946**





Department of Zoology  
Holy Cross College, Nagercoil  
National level E-Conference on  
“Regenerative Medicine & Psychoneuroimmunology”  
REPORT

Date: 16.07.2020

Time: 10 am to 12:00 noon

Total Number of Registered Participants – 406

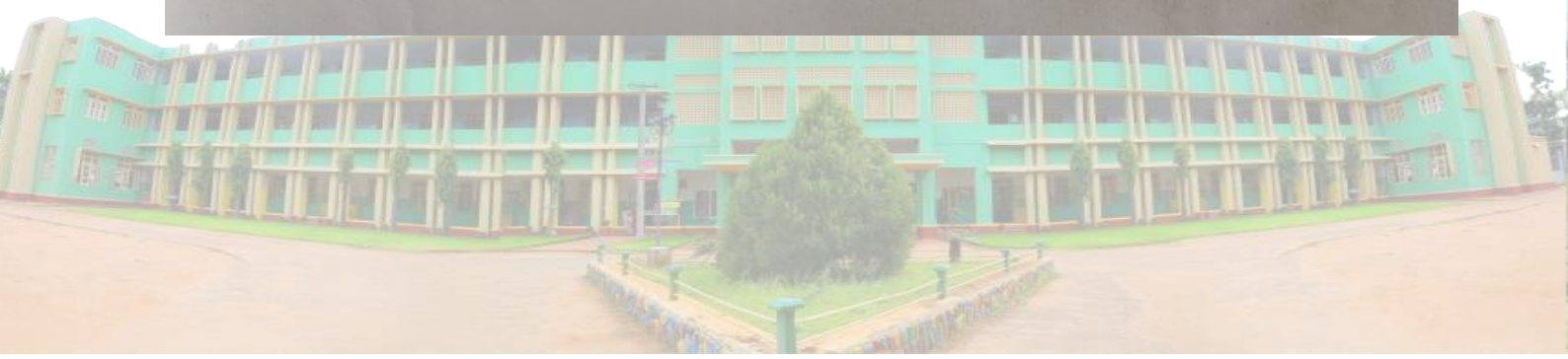
Number of participants attended - 172

**Report of the conference:**

A national level E-conference on “Regenerative Medicine & Psychoneuroimmunology” was organized by the department of Zoology on 16.07.2020. Dr. F. Brisca Renuga invoked the blessings of God with a short prayer. Dr. S. Mary Metilda Bai, convener of the conference welcomed the participants. Dr. Sr. Anne Perpet Sophy, Principal offered the felicitations. The fifth volume of the department annual newsletter “Chirps” was released. Dr. J. Vinoliya Josephine Mary, Organizing Secretary welcomed the first resource person Dr. Giridharan Appaswamy, Chief Scientific officer, Life cell International Private Ltd. Chennai. Dr. Giridharan addressed the topic ‘Stem cells in Regenerative Medicine’. He highlighted on the types of stem cells, role of HLA antigens in stem cell therapy and case studies on allogeneous stem cells like Crohn’s disease, Wiskott Aldrich syndrome and gene therapy. The role of cord stem cells in treating various ailments and the functioning of Life cell in stem cell banking and stem cells and COVID 19 was discussed. The participants highly appreciated his lecture and the queries were answered.

The next session was by Dr. M. Jayalakshmi, Assistant Professor, School of Biological Sciences, Madurai Kamaraj University. Dr. A. Punitha, organizing Secretary welcomed the resource person. Dr. M. Jayalakshmi spoke on ‘Psychoneuroimmunology and the mind's impact on health’. An elaborate research oriented lecture on stress factors, comparison between boys and girls concerning academics and financial stress, vitamin D as sunshine factor, evolution of immune response, relation between nervous and endocrine system, induced stress and psychoneuroimmunology captured the attention of all participants. Dr. S. Prakash Shoba proposed the vote of thanks. Dr. X. Venci Candida, Dr. A. Shyla Suganthi and Dr. Josephine Priyatharshini served as moderators.

*S. Mary Metilda Bai*  
Dr. S. MARY METILDA BAI  
Head, Department of Zoology  
Holy Cross College (Autonomous)  
Nagercoil - 629 004



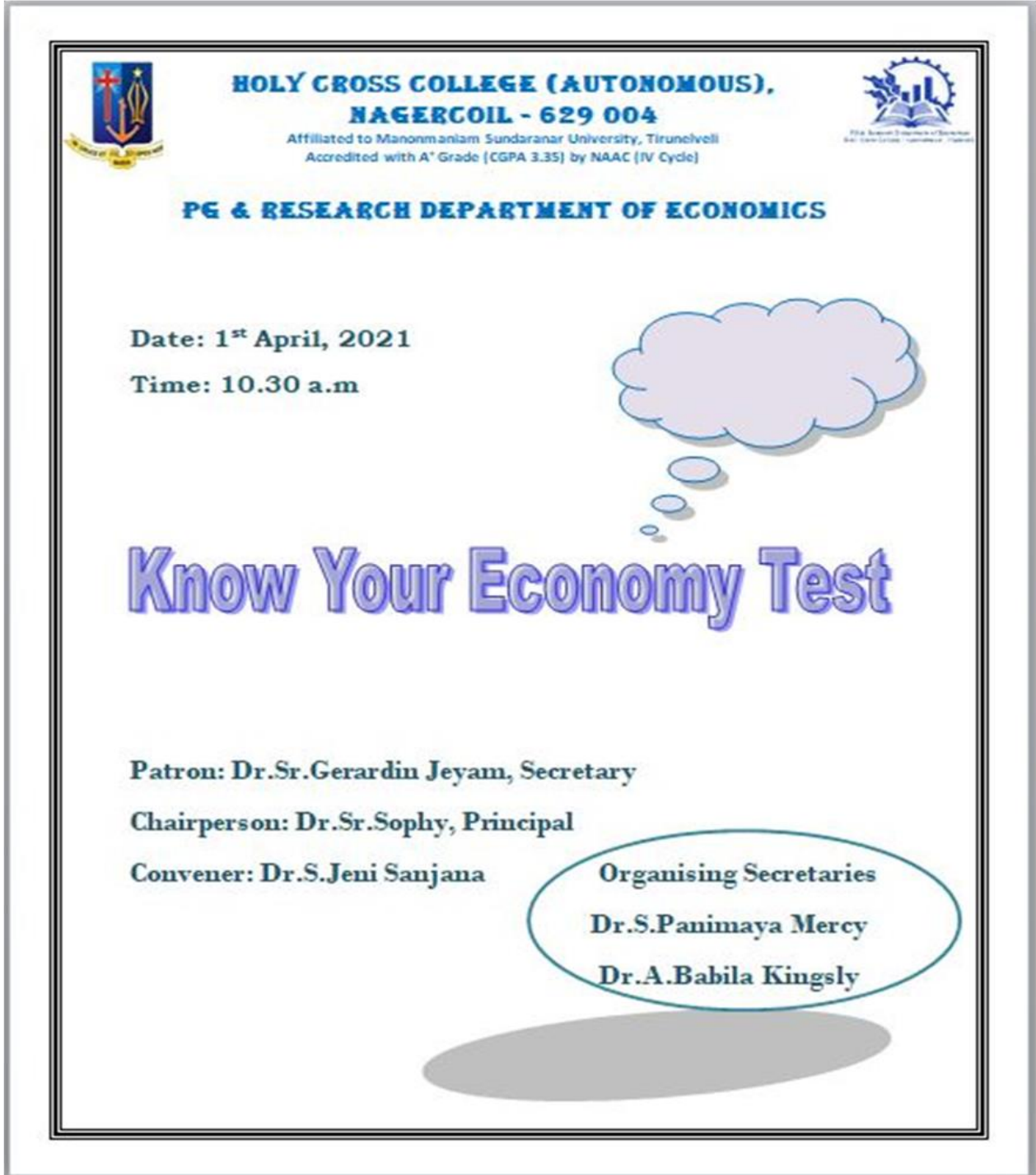
Department of Economics

MOU: Scientific Research Association for Economics and Finance (SRAEF)

Activity: Know Your Economy one word test

Date: 01-04-2021

Beneficiaries: 106



The poster is enclosed in a double-line border. At the top left is the Holy Cross College logo. At the top right is the NAAC logo. The central text reads: **HOLY CROSS COLLEGE (AUTONOMOUS), NAGERCOIL - 629 004**, followed by 'Affiliated to Manonmaniam Sundaranar University, Tirunelveli' and 'Accredited with A<sup>+</sup> Grade (CGPA 3.35) by NAAC (IV Cycle)'. Below this is the department name: **PG & RESEARCH DEPARTMENT OF ECONOMICS**. The event details are: **Date: 1<sup>st</sup> April, 2021** and **Time: 10.30 a.m**. A thought bubble graphic is positioned above the main title, **Know Your Economy Test**, which is written in a large, blue, 3D-style font. The organizers are listed as: **Patron: Dr.Sr.Gerardin Jeyam, Secretary**; **Chairperson: Dr.Sr.Sophy, Principal**; **Convener: Dr.S.Jeni Sanjana**; and **Organising Secretaries: Dr.S.Panimaya Mercy and Dr.A.Babila Kingsly**, the latter two names are enclosed in a blue oval. A grey shadow is cast below the oval.

**HOLY CROSS COLLEGE (AUTONOMOUS),  
NAGERCOIL - 629 004**

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**PG & RESEARCH DEPARTMENT OF ECONOMICS**

**Date: 1<sup>st</sup> April, 2021**  
**Time: 10.30 a.m**

**Know Your Economy Test**

**Patron: Dr.Sr.Gerardin Jeyam, Secretary**  
**Chairperson: Dr.Sr.Sophy, Principal**  
**Convener: Dr.S.Jeni Sanjana**

**Organising Secretaries**  
**Dr.S.Panimaya Mercy**  
**Dr.A.Babila Kingsly**

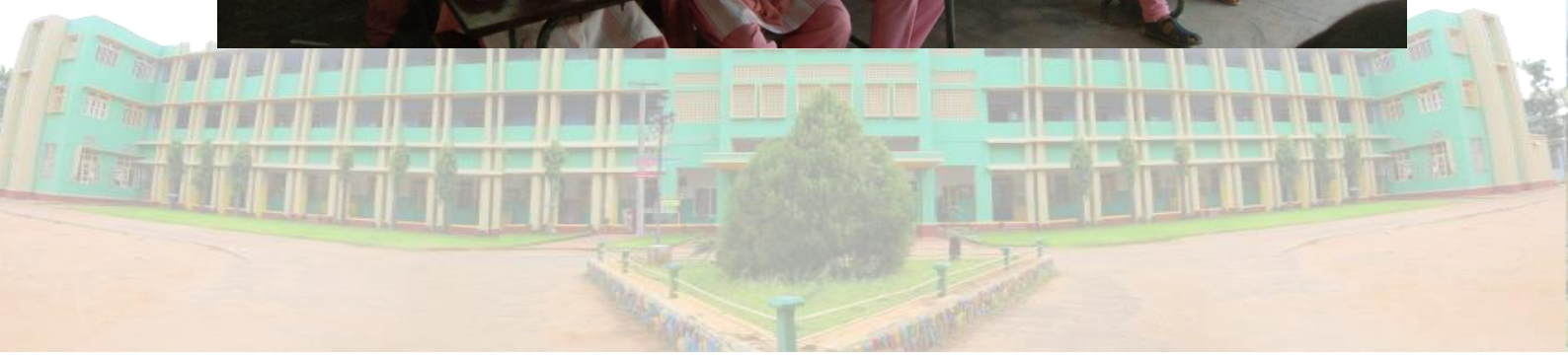


2020 - 2021

The Department of Economics in collaboration with Scientific Research Association for Economic and Finance (SARAEF), Chennai conducted a competition on 'Know Your Economy' for 186 Students of the Department of Economics on April 1<sup>st</sup> 2021 through a written Test. Alin Malya Rashmi .G of B.A. Economics won the I prize and Sushma.M of B.A. Economics, won the second prize, Jainisha of B.A. Economics won the III prize.

*A. Tejaswini*

**A. Tejaswini**  
Head of the Department  
Department of Economics  
Holy Cross Education Institutions



Department of Commerce (Aided)

MOU: LEXETA English and Soft Skill Academy

Activity: Value Added Course on English Communication Skills

Date: 03-08-2020 to 21-08-2020

Beneficiaries: 167



**Lexeta**  
**ENGLISH & SOFTSKILLS ACADEMY**  
YMCA Building, College Road, Nagercoil 629 001  
web : [lexetanagercoil.com](http://lexetanagercoil.com)

*An opportunity  
to improve  
your  
communication  
skill*

Thirty Hours  
**Value Added Course**  
on  
**English Communication Skill**

**KEY BENEFITS OF THE COURSE**

- Able to communicate in English
- Avoids communication breakdowns
- Overcomes communication fears
- Face the job market with confidence

03/08/2020  
TO  
21/08/2020





YMCA Building, College Road, Nagercoil 629 001  
web : [lexetanagercoil.com](http://lexetanagercoil.com)

Certificate Awarded to

**Third B. Com. (Aided), Holy Cross College, Nagercoil**  
for participating in the "Value Added Program – English Communication Skill"  
for 30 hours on-line training classes from 3<sup>rd</sup> August to 21<sup>st</sup> August 2020

Chief Executive  
(Mariadasan A)



**Childline**

**MOU: Childline India Foundation Mumbai**

**Activity: Awareness Programme on Girl Child Protection**

**Date: 06-03-2021**

**Beneficiaries: 300**

The childline, Kanyakumari District gave an awareness talk on Girl Child Protection to the students on 06-03-2021. Mrs. Palcy, CHILDLINE Team Member explained about CHILDLINE and its activities. Mrs. Beula, PO from DCPU explained about Child Sexual Abuse, POCSO Act 2012 and Child Protection. Mrs. D. Cathrine Mary, CHILDLINE Nodal Coordinator explained about the role of volunteers in child protection and discussed about activities by volunteers.



