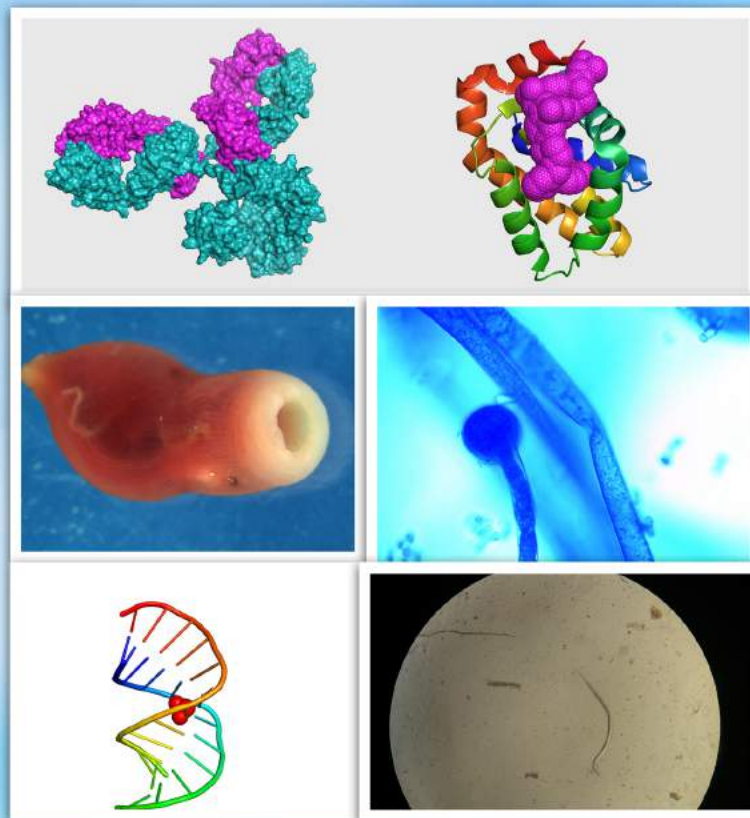




CHRIST
COLLEGE (AUTONOMOUS)
IRINJALAKUDA, KERALA

IMMUNOLOGY AND TOXICOLOGY RESEARCH LABORATORY



Drug discovery is a challenging but intriguing field of research requiring truly multidisciplinary approach. At ImmTox, we look into the unexplored floral resources to find lead molecules. Starting with computational simulation to find out the drug-target interaction, our studies will proceed through diverse bioassays to observe the phenotypic results of these DNA/protein interactions, culminating in preclinical studies using appropriate animal models.

**The ImmTox Lab
Department of Zoology
Christ College (Autonomous)
Irinjalakuda, Kerala, India - 680125**

FACILITIES AVAILABLE @ IMMTOX

Microbial culture studies:-



Laminar air flow, Autoclaves, Orbital shakers, BOD incubator, CO₂ incubator etc for antibacterial, antifungal and anthelmintic assays.

Electrophoresis studies:-



Separating tanks for agarose and acrylamide gel, SDS or native PAGE systems for DNA and proteins.

DNA amplification (PCR) studies:-



Thermocyclers, GelDoc system, MilliQ water system etc

Microscopy studies:-



Trinocular microscopes, Inverted microscope and Stereozoom microscopes

Spectrophotometric studies:-



Dual beam UV/Vis spectrophotometer and other accessories

Bioinformatic studies:-

Workstation GPU with bioinformatics packages for docking, simulations and modelling studies

EXTRAMURAL RESEARCH FUNDING @ IMMTOX (COMPLETED)

Major Research Projects

- **Bioremediation potentials of a dug-well grown herb *Lagenandra toxicaria* – a suspected hyperaccumulator. (UGC, New Delhi, India. Amount Rs. 11,74,300/-).**
- **Bioremediation and antimicrobial properties of a dug well floating plant *Lagenandra toxicaria* Dazzle. (KSCSTE, Kerala, India. Amount Rs. 12,62,400/-).**

Minor/Student Projects

- **Antioxidant activity of a tribal medicinal plant - *Desmodium triqutrum*. (KSCSTE, Kerala, India. Amount Rs. 14,000/-)**
- **Antioxidant activity of an Ayurvedic medicinal plant - *Kaempferia rotunda* (KSCSTE, Kerala, India. Amount Rs. 14,000/-)**

EXTRAMURAL RESEARCH FUNDING @ IMMTOX (SUBMITTED)

***In silico* and *in vitro* studies on the anticancer potentials of selected nutraceuticals with special reference to *Desmodium gangeticum* (Funding agency:- KSCSTE, Kerala, India. Amount Rs. 29,49,000/-)**



PhD SCHOLARS @ IMMTOX

PRAVEEN K

Thesis title :- Pharmacological Prospects of *Kaempferia rotunda* L., *Lagenandra toxicaria* DALZ., and their Endophytes with Special Emphasis on Anthelmintic Activity

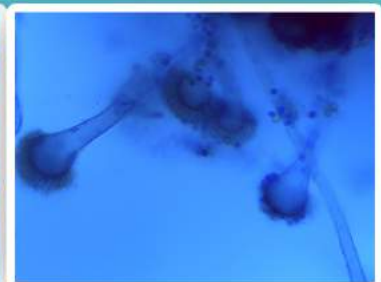
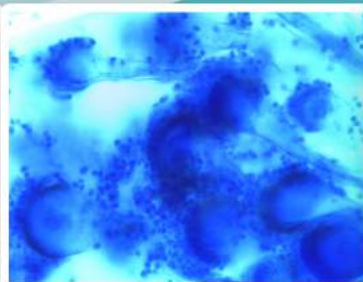
Selected Publications:-

- **Krishnakumar P and Varghese L. (2022)** Nematicidal activity of *Lagenandra toxicaria* Dalz and *Kaempferia rotunda* L. rhizome extracts against plant parasitic nematodes, *Meloidogyne incognita* (Kofoid and White) Chitwood and *Rhadopholous similis* Cobb. Indian Phytopathology. Accepted
- **Krishnakumar P, Menon M, Rajagopal A, Varghese L. (2022)** Trematocidal activity of certain plant species against rumen fluke *Fischoederius cobboldi*. Journal of Medicinal Plants Research. In press.
- **Krishnakumar P, Joe MG, Varghese M, Rajagopal A, Varghese L. (2021)** Identification and bioactivities of endophytic fungi from *Lagenandra toxicaria* Dalz. and *Kaempferia rotunda* L. J Appl Biol Biotech 9(04):117–125.



Selected National/International Presentations:-

- **“In vitro study of trematocidal potential of *Kaempferia rotunda* L. against the ruminant parasite, *Fischoederius cobboldi*”** International Webinar and Symposium on ‘Trends in Modern Biology’ (2021) Dept. of Zoology, University of Calicut.
- **“*Lagenandra toxicaria* Dalzell: an appraisal of its anthelmintic properties”** International Seminar on ‘Deliberation on ‘Translation of Basic Scientific Insights into Affordable Healthcare Products’ on ‘The 8th Annual Meeting of Indian Academy of Biomedical Sciences’ (2019) CSIR-NIIST Thiruvananthapuram, Kerala.
- **“Evaluation of antibacterial and antifungal activities of *Kaempferia rotunda* L. extracts and its fungal endophytes”** National Seminar on ‘Recent Trends in Microbiology’ (2017). Dept. of Life Sciences, University of Calicut.





PhD SCHOLARS @ IMMTOX

SOUMYA RAJ

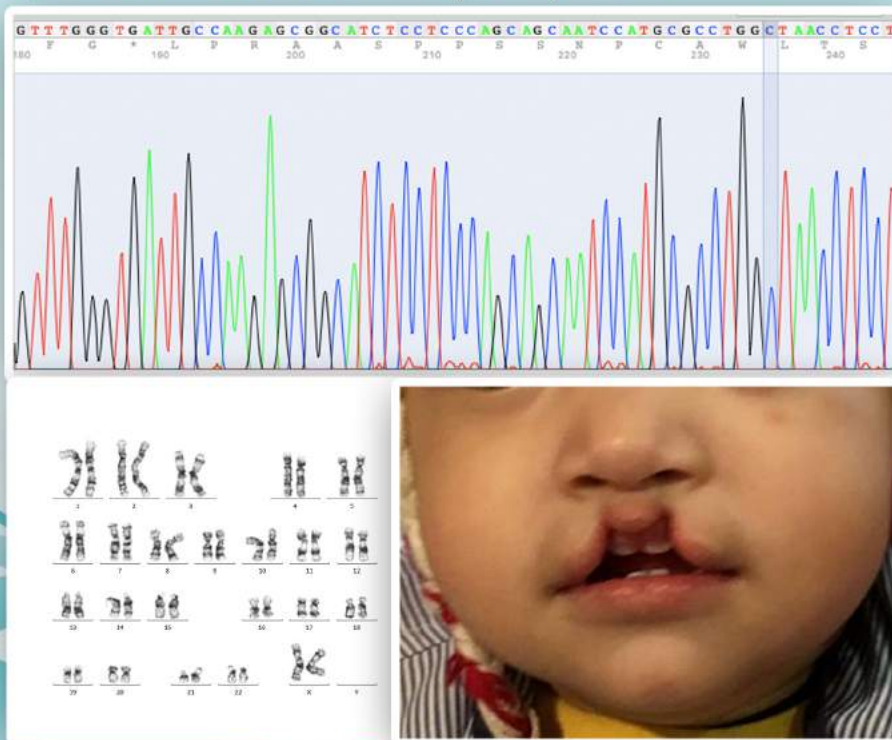
**Thesis title :- Genetic Studies in Cleft lip and Palate Patients from Kerala
Selected Publications:-**

- **Raj S, Varghese L, Narayanan P, Raveendran S, Varghese P, George A. (2022) Cytogenetic Analysis in Patients with Non Syndromic Cleft Lip and Palate. The Cleft Palate-Craniofacial Journal. Under review.**



Selected National/International Presentations:-

- **“Chromosomal Aberrations and IRF6 Polymorphism in Orofacial Clefts” National Symposium on ‘Genetics in Clinical Medicine’ (2017) Jubilee Center for Medical Research, Thrissur, Kerala.**
- **“Genetics of Cleft lip and Palate Patients from Kerala: A Pilot Study” International Seminar on ‘Deliberation on ‘Translation of Basic Scientific Insights into Affordable Healthcare Products’ on ‘The 8th Annual Meeting of Indian Academy of Biomedical Sciences’ (2019) CSIR-NIIST Thiruvananthapuram, Kerala.**





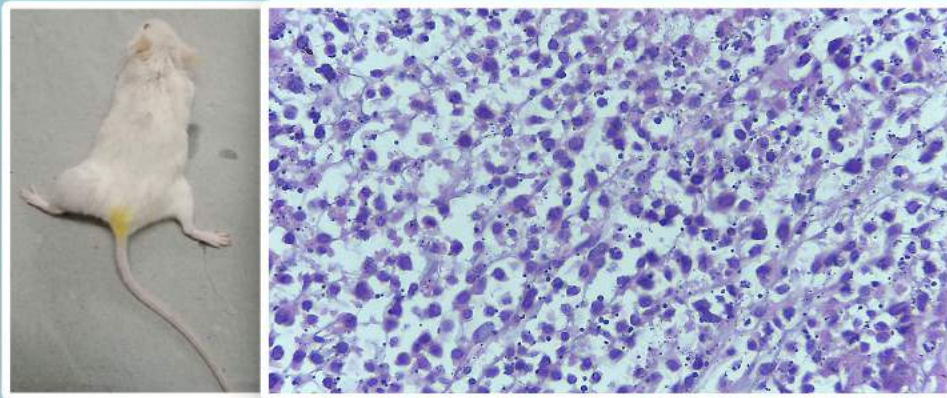
PhD SCHOLARS @ IMMTOX

MADHURI MENON

Thesis title :- Pharmacological Potentials of *Desmodium gangeticum* and *Tragia involucrata*

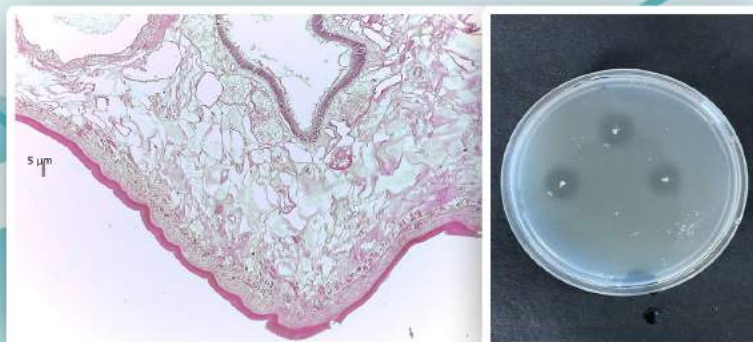
Selected Publications:-

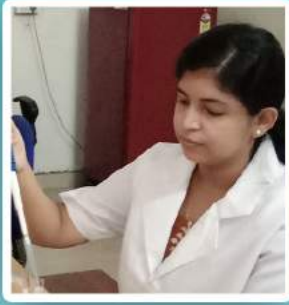
- Menon M, Raghavamenon AC, and Varghese L. (2022) Apoptosis induction and tumor reduction potentials of *Desmodium gangeticum* (L.) DC. South African Journal of Botany. Submitted.
- Krishnakumar P, Menon M, Rajagopal A, Varghese L. (2022) Trematocidal activity of certain plant species against rumen fluke *Fischoederius cobboldi*. Journal of Medicinal Plants Research. In press



Selected National/International Presentations:-

- "Effect of *Tragia involucrata* Linn. on Cell proliferation and Tumor reduction" International Conference on 'Combating Cancer : Biology to Therapy to Drug Resistance' on the '41st Annual Meeting of the Indian Association for Cancer Research' (2022) Amity Institute of Molecular Medicine and Stem Cell Research, Amity University, Noida.
- "Investigations on the anthelmintic potential of a medicinal plant against a ruminant gut parasite" International Webinar and Symposium (2022) Department of Zoology, University of Calicut.
- "Evaluation of Anthelmintic activity of a Medicinal Plant" Bioradiance '19 The National Conference on 'Toxicity Current Perspectives' (2019) Pushpagiri Research Centre, Thiruvalla.





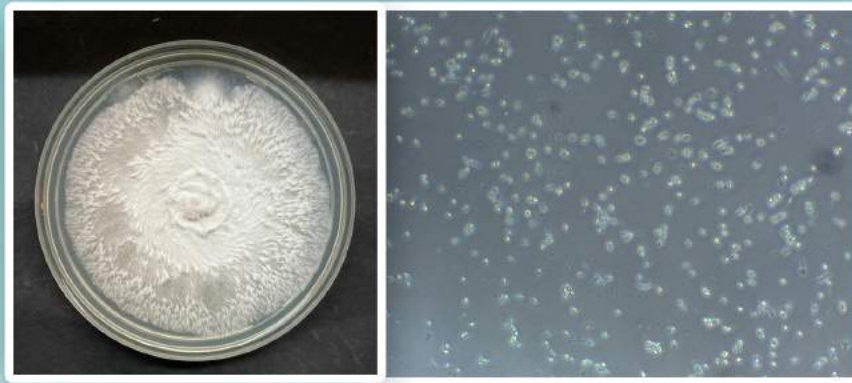
PhD SCHOLARS @ IMMTOX

JIMSY JOHNSON

Thesis title :- Interfering the Cell cycle Division by Phytochemicals of *Vernonia cinerea* (L.) Less and *Scoparia dulcis* L.

Selected Publications:-

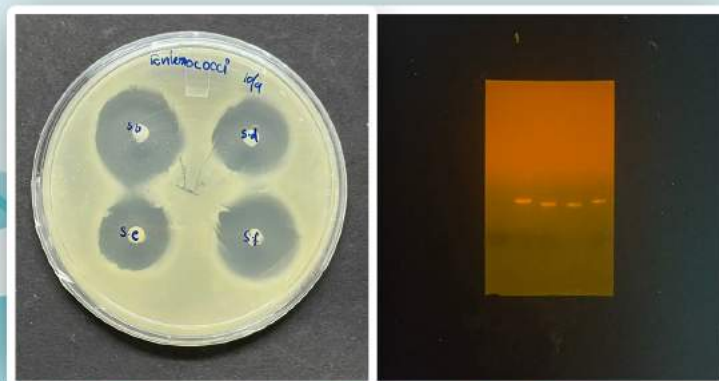
- Johnson J and Varghese L. (2022) Effect of *Vernonia Cinerea* (L) and one of its Sesquiterpene werolidol on lymphoma models. *Journal Ethnopharmacology*.
- Toxicological studies of *Vernonia cinerea* (L) less using mice model. *Indian J Trad. Knowl.* (2022). Submitted.



Selected National/International Presentations:-

Evaluation of Tumor reduction potential of *Vernonia cinerea* (L.) Less” International Conference on ‘Combating Cancer : Biology to Therapy to Drug Resistance’ on the ‘41st Annual Meeting of Indian Association for Cancer Research’ (2022) Amity Institute of Molecular Medicine and Stem Cell Research, Amity University, Noida.

- “Antimutagenic effects of a medicinal plant *Scoparia dulcis* L” International Webinar and Symposium on ‘Trends in Modern Biology’ (2021) Dept. of Zoology, University of Calicut.





PhD SCHOLARS @ IMMTOX

DHILNA SUNNY C

Thesis title :- Isolation of Bioactive Compounds from Endophytic Fungi Isolated from Medicinal Plants

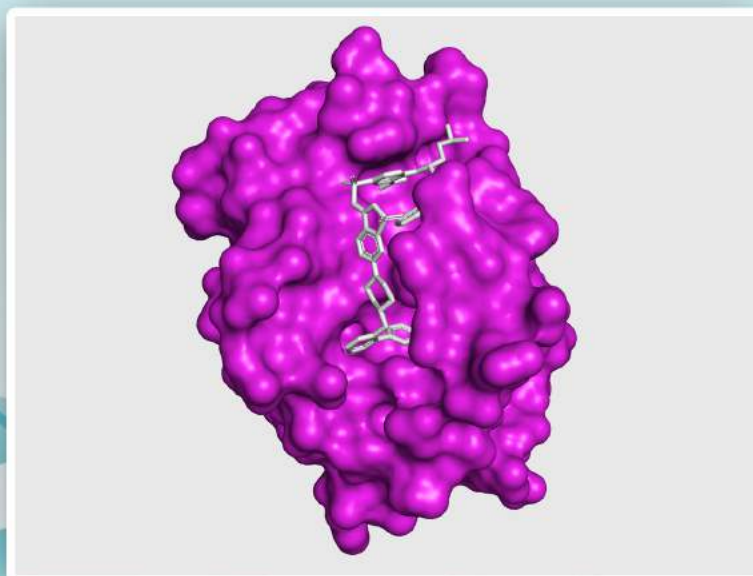
Selected Publications:-

- Sunny CD, Varghese D, Mahamood Muhsina, Kollannur Sweety S, Bhagirathan U and Varghese L. (2022). Silibinin is a Strong Inhibitor of Bacterial and Human Gelatinases. J Appl Biol Biotech. Submitted after minor revision.
- Varghese D, Sunny CD, Kurian A, Cherian T and Varghese L. (2022) *An in silico* study on the repurposing potentials of Eravacycline as a strong inhibitor of collagenases and gelatinases. J Appl Biol Biotech. Submitted after minor revision.



Selected National/International Presentations:-

“Silibinin’s Inhibitory Activity on Bacterial Gelatinases” 34th Kerala Science Congress (2022) Mar Ivanios College, Thiruvananthapuram.



PRESENTATIONS BY IMMTOX MSc STUDENTS

@ NATIONAL SEMINARS



- “32nd Kerala Science Congress January 2020. Yuvakshetra Institute of Management Studies Mundoor, Palakkad, India. Antibacterial and anthelmintic activities of *Kaempferia rotunda* endophytes. Ms. Mable Varghese (Reg. No. CCARMZL007).
- KSCSTE sponsored national seminar on ‘Nano materials and its advances in chemical and life sciences’. January 2017. Department of Chemistry, St. Xavier’s College for Women, Aluva, India. Anthelmintic and Antifungal Activities of Tender Coconut Husk Leachate. Ms. Treesamol Antony (Reg. No. CCAOMZL012)
- 29th Kerala Science Congress January 2017. MarThoma College, Thiruvalla, Pathanamthitta, India. Identification of metal resistant endophytes from *Lagenandra toxicaria*, a hyperaccumulator. Ms. Besty Attokaran Jose (Reg. No. CCAOMZL003)
- UGC sponsored national seminar on “Chemistry for a sustainable Future” October 2015. Department of Chemistry, Little flower College, Guruvayoor, India. Antioxidant activity of an ayurvedic medicinal plant *Kaempferia rotunda* Linn. Ms. Jimsy Johnson (Reg. No. CCAMMZL003)
- World Congress on Research and Innovations (WCRI2K13) December 2013. St. Joseph’s College, Irinjalakuda, India. Antibacterial activity of *Lagenandra toxicaria* -a local bioremedial plant. Christy Jose (Reg. No. CCALMZL003).

MSc DISSERTATIONS @ IMMTOX

1. A study on the antibacterial activity of *Lagenandra toxicaria*. Christy Jose (Reg. No. CCALM ZL003). 2012-13
2. A study on the antioxidant activity of *Lagenandra toxicaria*. Vibitha KB (Reg. No. CCALM ZL012). 2012-13
3. Antioxidant activity of a tribal medicinal plant - *Desmodium triqustrum*. Neethu MU (Reg. No. CCAMMZL005). 2013-14
4. Antioxidant activity of an Ayurvedic medicinal plant - *Kaempferia rotunda*. Jimsy Johnson (Reg. No. CCAMMZL003). 2013-14
5. Antioxidant activity of nutmeg pericarp. Anugraha K Sreedhar (Reg. No. CCANMZL002). 2014-15
6. Antifungal activity of nutmeg pericarp (rind). Haritha PH (Reg. No. CCANMZL005). 2014-15
7. Anthelmintic and antifungal activities of Coconut husk leachate. Treesamol Antony (Reg. No. CCAOMZL012). 2015-16
8. Identification of metal resistant endophytes from *Lagenandra toxicaria*, a hyperaccumulator. Besty Attokaran. (Reg. No. CCAOMZL003). 2015-16
9. Antibacterial activity of *Kaempferia rotunda* L and its fungal endophytes. Jestina John, (Reg. No. CCAPMZL005). 2016-17
10. Antifungal activity of *Kaempferia rotunda* L rhizome. Merin Paul, (Reg. No. CCAPMZL007). 2016-17
11. Identification and characterization of cadmium resistant bacterial endophytes from *Lagenandra toxicaria*, a hyperaccumulator. Jasna Abbas, (Reg. No. CCAPMZL004). 2016-17
12. Study on the mutagenic and antimutagenic properties of *Carica papaya* and *Euphorbia milii*. Thanzeen P.S. (Reg. No. CCAQMZL013). 2017-18
13. Anthelmintic activities of *Desmodium gangeticum* Neenu Joy, (Reg. No. CCAQMZL007). 2017-18
14. Coliform growth inhibition of *Lagenandra toxicaria*. Thanveer Banu, (Reg. No. CCAPMZL012). 2017-18
15. Antibacterial and anthelmintic activities of *Kaempferia rotunda* endophytes. Mable Varghese (Reg. No. CCARMZL007). 2018-19
16. Antibacterial and anthelmintic activities of endophytes isolated from *Lagenandra toxicaria*. Maria Grace Joe (Reg. No. CCARMZL008). 2018-19
17. A bioinformatic Approach for Drug Repurposing of Selected Tetracycline Antibiotics Against Oncotargets. Anna Kurian (Reg. No. CCASMZL002). 2019-20
18. In silico Docking Studies of Selected Antimicrobial Molecules to Predict Their Potential for Covid-19 Pandemic Management. Ardra Jacob (Reg. No. CCASMZL003). 2019-20
19. Structure Prediction of *Enterococcus faecalis* Gelatinase Enzyme by Homology Modeling MUHSINA MAHAMOOD (Reg. No. CCATMZL008). 2020-21
20. Molecular Docking Studies of Selected Aminoglycosides to Predict Their Gelatinase Inhibitory Potential. Sweety S Kollannur (Reg. No. CCATMZL013). 2020-21
21. A study on the antiangiogenic potentials of selected antibiotics. Alex Joffy Pullokkaran (Reg. No. CCATMZL008). 2021-22
22. A study on the anticancer potentials of certain newly synthesized chalcones. Ardra R Menon (Reg. No. CCAUMZL003). 2021-22
23. A study on the cytotoxic potentials of selected chalcone derivatives. Arya Sajeev (Reg. No. CCAUMZL004). 2021-22

BOOK CHAPTERS @ ImmTox

- ‘Coliform growth inhibition by *Lagenandra toxicaria*’ in ‘Perspectives in life sciences’ Edited by MV Sudhakaran. UGC-HRDC and Sahithya Pravarthaka co-operative society Ltd. Kottayam, Kerala. ISBN-978-93-88992-90-9. December 2019.
- ‘Antimicrobial compounds from endophytic fungi with special emphasis on Ascomycetes’ in ‘Advances in Sustainable Bioprospecting Methods’ Edited by Ganga G. Bright Sky Publications. New Delhi. 2022.

AWARDS @ ImmTox

- C Achutha Menon Study and Research Center, Thrissur. ‘Young Researcher Fellowship-2019’ **Soumya Raj.**
- The 8th Annual Meeting of Indian Academy of Biomedical Sciences’ (2019) CSIR-NIIST Thiruvananthapuram, Kerala. ‘Best Presentation Award’ **Soumya Raj.**
- Bioradiance '19, The National Conference on ‘Toxicity Current Perspectives’ (2019) Pushpagiri Research Centre, Thiruvalla. Runner-up Best Presentation Award. **Madhuri Menon.**

PRINCIPAL INVESTIGATOR @ IMMTOX



Dr. Leyon Varghese, PhD
Assistant Professor,
Department of Zoology,
Christ College (Autonomous), Irinjalakuda.
Email: leyon@christcollegeijk.edu.in

RESEARCH CITATION INDICES

- Google Scholar h-index - 11 (Citations 802)
 - ResearchGate h-index - 11 (Citations 680)
 - Scopus (Elsevier) h-index - 11 (Citations 541)
 - Web of Science (Publons) h-index - 10 (Citations 468)
- Average impact factor 4.21 (2003 - 2020)

HONOUR/AWARDS

- FLAIR Fellowship (2015), Four weeks at 'University of Roehampton, London, UK'. Identified by FLAIR, Office of the New Initiatives, Higher Education Department, Gov. Kerala
- Best Research Paper Award (2013), at 'World Congress on Research and Innovations' St. Joseph's College, Irinjalakuda, Kerala, India
- Young Researcher Award (2009), at 'International Symposium on Cancer Chemoprevention & Translational Research' Jawaharlal Nehru University, New Delhi, India

