

K.R.V. BANDARA
B.Sc. (Special, Hons.), Ph.D. (USJ, SL)



Research fields- Environmental Sciences, Ecotoxicology, Marine xenobiotics and Pollution, Aquaculture and Fish genetics, Water quality monitoring and Microbiology

PERSONAL INFORMATIONS

Name in full : Kumudu Rangani Vidane Bandara
Birthday : 06th June 1989
Sex : Female
Marital status : Married
Nationality : Sri Lanka
Google Scholar : <https://scholar.google.com/citations?user=fDyYvBUAAAj&hl=en>
(Kumudu Bandara)

Contact Details

Permanent Address : 23/5/521, Lional Jayasinghe Mawatha, Godagama, Homagama, Sri Lanka.
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EDUCATIONAL QUALIFICATION

- 2017- 2021 - **PhD Degree**
Department of Zoology, Faculty of Applied Sciences,
University of Sri Jayewardenepura.
Research title - Analysis of Tributyltin (TBT) in coastal environment in Sri Lanka and TBT induced reproductive impairment in field captured mollusks and laboratory exposed Zebra fish model
- 2015 - **B.Sc. (Special) Degree in Zoology**
First-class honors (GPA 3.7/ 4.0)
Department of Zoology, Faculty of Applied Sciences,
University of Sri Jayewardenepura.
- 2012 - Completed NVQ level 3 - National Certificate in Computer Applications Assistant. National Youth Services Council.

PROFESSIONAL EXPERIENCE

Temporary Research Scientist - From April 2022 – up to now

Temporary Research Assistant - From January 2017 to March 2022

I have assisted various research projects focused on water quality, environmental pollutants, marine wastes, soil toxins, biological toxins, heavy metals, fish genetics, and microbial resistivity with the goal of finding better solutions to improve aquaculture, agriculture, and environmental sustainability.

I have acquired many technical skills with novel instrument handling such as Gas Chromatography Mass Spectrometry (GC-MS), High Performance Liquid Chromatography (HPLC), ELISA machines, Epifluorescence Microscope, and Real-Time PCR. Further expertise in field sample collecting of water, soil, and biota, solution preparation, biological sample extracting with different solvent extraction methods, molecular RNA analysis & gene expressions, and data collecting along with many interpersonal skills that helped me to become a better researcher and a team player.

Conducted Research Projects

- Completed the research project for Doctor of Philosophy degree on "Analysis of Tributyltin (TBT) in coastal environment in Sri Lanka and TBT induced reproductive impairment in field captured mollusks and laboratory exposed Zebra fish model". 2017- 2021.
- Worked as a Research Assistant in the project of CKDu which collaborated with the Biotechnology and Biological Sciences Research Council, Robert Gordon University- UK. From 2020 – March of 2022.

- Worked as a Research Assistant in the project of environmental risk assessment of MV-X press pearl ship fire; analyzing Poly aromatic hydrocarbon contaminations in marine water and biota. 2021-2022.
- Worked as a Research Assistant on the project on Coastal pollution, analyzing marine chlorophyll and plankton content with the collaboration of the Department of Coast Conservation and Coastal Resource Management in Sri Lanka. From 2020 – 2022.
- Worked as a member of the research team in the project on Soil and water quality in Thalangama Tank, wetlands, and paddy fields in Thalangama, Katuwana GN, Kiriwaththuduwa GN, and Walpitayaya- 2018.
- Worked as a member of the research team in the project “Later part of the Kelani River Basin Monitoring Programme” and collaborated with the Ministry of Mahaweli Development and Environment.
Title- Prevention of Waste Disposal to the Kelani River and Protection of Kelani River Lower Basin 2017.

AWARDS

1. **Gold medal awarded** for the PhD research excellence from the University of Sri Jayewardenepura- 2022.
2. **Best presenter awarded** for the oral presentation at the 9th International Conference on Multidisciplinary Approaches 2022.
3. **Best presenter awarded** for the oral presentation at the 26th International Forestry and Environment Symposium 2022.
4. **Best presenter awarded** for the oral presentation at the 4th international Conference on Applied and Pure Sciences (ICAPS) 2023.

RESEARCH PUBLICATIONS

Published Full Papers (8)

1. **Bandara K.R.V.**, Chinthakac S. D. M., Yasawardened S.G. and Pathmalal M. M. (2021) Modified, optimized method of determination of Tributyltin (TBT) contamination in coastal water, sediment and biota in Sri Lanka. Marine Pollution Bulletin, 166 (2021) 112202. <https://doi.org/10.1016/j.marpolbul.2021.112202>
2. **Bandara, K.R.**, Padumadasa, C. and Peiris, D.C. (2018) Potent antibacterial, antioxidant and toxic activities of extracts from *Passiflora suberosa* L. leaves. PeerJ, 6, p.e4804. <https://doi.org/10.7717/peerj.4804>
3. **Bandara K.R.V.** and Manage. P.M. (2021). Toxicological endpoints of Tributyltin (TBT) in zebrafish (*Danio rerio*) embryos. Environment and Natural Resources. [10.32526/enrj/20/202200001](https://doi.org/10.32526/enrj/20/202200001)
4. P. M. Manage, G. Y. Liyanage, I. Abinaiyan, D. A. T. Madusanka and **K. R. V. Bandara.**

- (2022). Pollution levels in Sri Lanka's west-south coastal waters: Making progress toward a cleaner environment. *Regional Studies in Marine Science*, 51 102193 <https://doi.org/10.1016/j.rsma.2022.102193>
5. Pathmalal M M, Hemantha W, Dilena P, Liyanage G Y, Chalani R, **Bandara K R V**, Wijerathna P A K C and Abeysiri H A S N. (2022). Impact of the MV X-Press Pearl ship disaster on the coastal environment from Negambo to Bentota in Sri Lanka. *Regional Studies in Marine Science*, <https://doi.org/10.1016/j.rsma.2022.102788>
 6. Athauda A.M.N., Abinaiyan I., Liyanage G.Y., **Bandara K.R.V.**, and P.M. Manage (2022). Spatio-Temporal Variation of Water Quality in the Yan Oya River Basin, Sri Lanka. *Water, Air, & Soil Pollution*, <https://doi.org/10.1007/s11270-023-06151-9>
 7. P. A. K. C. Wijerathna, K.T Dilrukshi, G.Y. Liyanage, **K. R.V. Bandara**, M.G.Y. L. Mahagamage, P. M. Manage (2024) Status of Cyanotoxin Contamination and Water Quality in Major Irrigational and Recreational Reservoirs in Sri Lanka. *Sustainable Water Resources Management*, <https://doi.org/10.1007/s40899-024-01091-6>
 8. Mallikarachchi, K.E.P., **Bandara, K.R.V.**, Weerasekera, M.M., Nugara, R.N., Undugoda, L.J.S. and Manage, P.M., 2024. Aromatase (CYP19) gene as a biomarker for detection of naphthalene and phenanthrene in Colombo to Mirissa coastal water in Sri Lanka. *Marine Pollution Bulletin*, 201, p.116187. <http://dx.doi.org/10.1016/j.marpolbul.2024.116187>

Book Chapters (8)

1. **Bandara K.R.V.** and Manage. P.M. (2022). Trace level identification and occurrence of heavy metal contamination in the coastal environment. *Marine Pollution - Recent Developments. IntechOpen*. ISBN 978-1-80356-300-8. DOI: [10.5772/intechopen.106653](https://doi.org/10.5772/intechopen.106653)
2. **Bandara, K.R.V.**, Liyanage, G.Y., Sirisena, K.A., and Manage, P.M. (2022). Hydrocarbon Remediation- A green solution to the problem of hydrocarbon pollutants. *Microbial Technologies, and Their Application*. Nova Science Publishers, NY, USA. DOI: <https://doi.org/10.52305/JUTX4763>
3. Ekanayake, E.M.M.S., Idroos, F.S., **Bandara, K.R.V.** and Manage, P.M. (2022). Phytoremediation and Phytostabilization: Current scenario and future prospects. *Microbial Technologies, and Their Application*. Nova Science Publishers, NY, USA. DOI: <https://doi.org/10.52305/JUTX4763>
4. Abeysiri, H.A.S.N., **Bandara, K.R.V.**, Sirisena, K.A. and Manage, P.M. (2022) Phytoplankton in Climate Change and Regulation. *Microbial Technologies, and Their Application*. Nova Science Publishers, NY, USA. DOI: <https://doi.org/10.52305/JUTX4763>
5. **K.R.V. Bandara**, P.M. Samudrani, H.A.S.N. Abeysiri, G.Y. Liyanage, P.M. Sandupama, D.M.P.I. Dissanayake, M.M. Pathmalal and S.A. Kulasooriya. (2023) Chemical and Toxicological Studies of the Toxic Freshwater Cyanobacterium: *Microcystis aeruginosa*. In:

Thajuddin, N., Sankara narayanan, A., Dhanasekaran, D. (eds) Protocols for Cyanobacteria Sampling and Detection of Cyanotoxin. Springer, Singapore. DOI: https://doi.org/10.1007/978-981-99-4514-6_22

6. **K.R.V. Bandara**, L.D.C. Peiris, D.M.P.I. Dissanayake, M.M. Pathmalal and S.A. Kulasooriya. (2023) Detection of Cyanobacterial Cell Wall Components by Cellular Signaling Biosensors. In: Thajuddin, N., Sankara narayanan, A., Dhanasekaran, D. (eds) Protocols for Cyanobacteria Sampling and Detection of Cyanotoxin. Springer, Singapore. DOI: https://doi.org/10.1007/978-981-99-4514-6_63
7. H.D.D. Sadeepa, **K.R.V. Bandara**, G.Y. Liyanage, M.M. Pathmalal and S.A. Kulasooriya. (2023) Genotoxicity of Cyanotoxins. In: Thajuddin, N., Sankara narayanan, A., Dhanasekaran, D. (eds) Protocols for Cyanobacteria Sampling and Detection of Cyanotoxin. Springer, Singapore. DOI: https://doi.org/10.1007/978-981-99-4514-6_37
8. G.Y. Liyanage, S.A. Kulasooriya, S.P. Manage, **K.R.V. Bandara**, Budhdhika Prabhath and P.M. Manage. (2023) Screening of Polyketide Synthase Genes in the Anatoxin-a-Producing Cyanobacteria. In: Thajuddin, N., Sankara narayanan, A., Dhanasekaran, D. (eds) Protocols for Cyanobacteria Sampling and Detection of Cyanotoxin . Springer, Singapore. https://doi.org/10.1007/978-981-99-4514-6_51

[Abstracts published in National and International Symposia \(28\)](#)

1. **Bandara K.R.V.**, Padumadasa C., Peiris L.D.C. (2016). Antioxidant and Cytotoxic Activities of *Passiflora Suberosa* L. Leaf Extracts. 21st Forestry and Environment Symposium 2016, Heritage Kanadalama, September 23-24, Dambulla Sri Lanka. P66.
2. **Bandara K.R.V.**, Padumadasa C., Peiris L.D.C. (2016). Phytochemical Screening and Antimicrobial Activity of Extracts from *Passiflora Suberosa* L. Leaves. 21st Forestry and Environment Symposium 2016, Heritage Kanadalama, September 23-24, Dambulla Sri Lanka. P. 68.
3. **Bandara K.R.V.**, Padumadasa C., Peiris L.D.C. (2017). Biological evaluation of different extract from *Passiflora suberosa* L Leaves. The International Journal of Arts and Sciences' (IJAS) academic conference. May 29 – June 1. Catania, Sicily.
4. **Bandara K.R.V.**, Hettiarachchia I.U. and Manage P.M. (2017) Microcystin contamination status of sediments in selected water bodies in Sri Lanka. 6th International Symposium on Water Quality and Human Health: Challenges Ahead.
5. **Bandara K.R.V.**, Chinthaka S.D.M. and Manage. P.M. (2018) An effective method to detect Tributyltin by Gas Chromatography-Mass Spectrometry Using Solid-Phase Micro-Extraction, 23rd International Conference on Forestry and Environmental Sciences, pg 79.
6. **Bandara, K.R.V.**, Chinthaka, S.D.M. and Manage. P.M. (2019) Monitoring Tributyltin (TBT) Contamination of Southern Coastal Waters in Sri Lanka, International Research Conference Uwa Wellasa University (IRCUWU), pg 25.

7. **Bandara K.R.V.**, Chinthaka S.D.M. and Manage. P.M. (2019) Contamination of Tributyltin on selected marine invertebrates collected from selected fishery harbors in Sri Lanka, 24th International Conference on Forestry and Environmental Sciences. Pg 58.
8. **Bandara, K.R.V.**, Chinthaka, S.D.M. and Manage. P.M. (2019) Novel Solid Phase Micro Extraction (SPME) method for GC-MS analysis of Triutyltin, 4th International Symposium on Pure and Applied Sciences, pg 139.
9. **Bandara, K.R.V.**, Chinthaka, S.D.M. and Manage. P.M. (2019) Efficient Tributyltin Extraction Method from Marine Sediment, Rajarata International Research Conference, pg 212.
10. **Bandara, K.R.V.**, Chinthaka, S.D.M. and Manage. P.M. (2019) Contamination status of tributyltin in commercial and fishery harbors in Sri Lanka, 6th International Conference on Multidisciplinary Approaches, pg 21.
11. **Bandara, K.R.V.**, Chinthaka, S.D.M. and Manage. P.M. (2019) Tributyltin contamination in water sediment and biota samples collected from selected coastal areas in Sri Lanka, 7th International Symposium on Water Quality and Human Health: Challenges Ahead, pg 45
12. **Bandara, K.R.V.**, Chinthaka, S.D.M. and Manage. P.M. (2019) Determination of Tributyltin in marine water and sediment in Sri Lankan harbors, 7th Ruhuna International Science and Technology Conference.
13. **Bandara, K.R.V.** and Manage. P.M. (2020) Evaluation the Toxicity of Tributyltin (TBT) on Natural Bacterial Population. Southeast Asian Regional Symposium on Microbial Ecology. Pg 25
14. **Bandara, K.R.V.**, Chinthaka, S.D.M. and Manage. P.M. (2020) Contamination status of Tributyltin (TBT) in *Perna viridis*. International Conference in Postgraduate Institute of Science Research Congress-2020, Sri Lanka, pg 41.
15. **Bandara, K.R.V.**, Chinthaka, S.D.M. and Manage. P.M. (2020) Assessment of tributyltin contamination in marine sediments and biota (*Perna viridis*) in coastal belt of Sri Lanka, 7th International Conference on Multidisciplinary Approaches, pg 23.
16. **Bandara, K.R.V.** and Manage. P.M. (2021) Bioaccumulation potential of Tributyltin in mollusks in some harbours in Sri Lanka, International Conference on Applied and Pure Sciences, 2021, pg 83.
17. **Bandara, K.R.V.** and Manage. P.M. (2021) Reproductive impacts of Tributyltin (TBT) on marine invertebrates in Sri Lanka, International Conference on Multidisciplinary Approaches in Science 2021, pg 126.
18. **Bandara, K.R.V.** and Manage. P.M. (2021) Contamination status and effect of Tributyltin (TBT) on reproductive impairment of mollusks, conference of the Postgraduate Institute of Science Research Congress, Sri Lanka 2021, pg 15.
19. **Bandara, K.R.V.** and Manage. P.M. (2021) Tributyltin (TBT) reproductive effects on Sri Lankan marine invertebrates, International Symposium on Water Quality and Human Health: Challenges Ahead 2021. pg.43.
20. **Bandara, K.R.V.** and Manage. P. M. (2021) Masculinisation effect of tributyltin on zebrafish (*Danio rerio*). 8th International Conference on Multidisciplinary Approaches-2021. Pg. 81.
21. **Bandara, K.R.V.** and Manage. P. M. (2021) Toxicity of Tributyltin (TBT) on zebra fish embryos. 26th International Conference of Forestry and Environment 2022. Pg. 54.

22. **Bandara K.R.V.**, Chinthaka S.D.M. and Pathmalal M.M. (2022) Steroid effect of Tributyltin (TBT) on zebrafish. Conference of the Postgraduate Institute of Science Research Congress, Sri Lanka 2022, pg 50.
23. **Bandara K.R.V.**, Chinthaka S.D.M., Weerasekera M.M. and Pathmalal M.M. (2022) Altered expression of CYP-19 gene in zebrafish in response to Tributyltin. 9th International Conference on Multidisciplinary Approaches-2022. Pg. 38.
24. **Bandara, K.R.V.** and Manage. P. M. (2023) ImPOSEX in the gastropod, *Thais clavigera* as a sensitive biomarker for tributyltin (TBT) pollution. 4th International Conference on Applied and Pure Sciences, 2023, pg 39.
25. K.E.P. Mallikarachchi, **Bandara, K.R.V.** and Manage. P. M. (2023) Levels of Naphthalene and Phenanthrene in seawater along the coastal belt from Colombo to Mirissa in Sri Lanka. 4th International Conference on Applied and Pure Sciences, 2023, pg 32.
26. R. K. Dharmathilake, R.T.K. Ariyawansa, **K.R.V. Bandara** and B.F.A. Basnayake. (2023) Development of an environmentally friendly energy efficient biofiltration system for brackish water desalination. 2023 International Research Conference of Sri Lanka Technology Campus Colombo, Sri Lanka, pg 35.
27. K.E.P. Mallikarachchi, **Bandara, K.R.V.** and Manage. P. M. (2023) Aromatase (CYP19) Gene as a Biomarker for Detection of Naphthalene and Phenanthrene in Colombo to Mirissa Coastal Water in Sri Lanka. 29th Scientific Session of the Sri Lanka Association for Fisheries and Aquatic Resources. pg 38.
28. **Bandara, K.R.V.** and Manage. P. M. (2024) Relationship between Tributyltin (TBT) contamination level and total lipid content in body tissues of marine invertebrates. 28th International Forestry and Environment Symposium.

MEMBERSHIPS

1. Member of the Institute of Biology, Sri Lanka (M. I. Biol (Sri Lanka))
2. Member of the Science and Technology Management Information System, National Science Foundation, Sri Lanka.

NATIONAL CONTRIBUTION

- Participated as a **Resource Person** in the National Training Programme on “Data Management and Report Writing” conducted by the Centre for Water Quality and Algae Research- 2023
- Working as an **immediate supervisor** for the research projects of Bio-Medical Sciences (BMS), Sri Lanka which are being conducted at the Centre for Water Quality and Algae Research, University of Sri Jayewardenepura, from 2022 up to the present.

Contribution to the publications of national books (5)

1. Member of the Research team and Writing team on the book *Impact of the MV X-Press Pearl Ship Disaster on the Coastal Environment from Negombo to Bentota*- 2022.
2. Member of the Research team and Writing team on the book *Nature in Therapy*- March 2021. ISBN 978-624-5629-00-8
3. Member of the Research team and Writing team on the national report *Prevention of Waste Disposal to the Kelani River and Protection of Kelani River Lower Basin*- 2018
4. Member of the Editorial Assistance on the book *Training Manual- Methods for Questionnaire Preparation and Data Management*- 2023. ISBN 978-624-5703-72-2
5. Member of the Editorial Assistance on the book *Training Manual- Field and Laboratory Methods for Water, Soil and Biological Sample Collection, Analysis and Data Reporting*- 2022. ISBN 978-624-5703-18-0
6. Organizing committee member on the Proceedings book of the 9th International Conference on Multidisciplinary Approaches (iCMA) – 2022. ISBN 2386 – 1509

TEACHING/ WORKING EXPERIENCE

1. Working as a **visiting lecturer** at the Sri Lanka Technological Campus (SLTC Research University) from 14th March 2023 up to now.
2. Working as a **visiting lecturer** at the Rec Campus, Nugegoda- Sri Lanka from 31st July, 2023 up to now.
3. Working as a **Temporary Research Scientist**, Faculty of Graduate Studies, University of Sri Jayewardenepura from 1st April 2022 to up to now.
4. Worked as a **Temporary Research Assistant**, at the Faculty of Graduate Studies, University of Sri Jayewardenepura from 1st January 2021 to 30th March 2022.
5. Worked as a **Temporary Research Assistant**, at the Centre for Water Quality and Algae Research, Department of Zoology, University of Sri Jayewardenepura from 1st January 2017 to 31st December 2020.
6. Worked as a **Temporary Demonstrator**, at the Department of Zoology, University of Sri Jayewardenepura from 1st January 2016 to 31st December 2016.

TRAINING, WORKSHOPS AND SEMINARS ATTENDED

- i. Participated & successfully completed a training program “*Field and Laboratory Methods for Water, Soil and Biological Sample Collection*, - 2022.
- ii. Participated & successfully completed the “Cyanotoxin Toolbox Part II” workshop conducted by the Centre for Water Quality and Algae Research, University of Sri Jayewardenepura in collaboration with Robert Gordon University, Aberdeen, UK.
- iii. Participated & successfully completed the three-week training program on ‘DEVELOPING LEADERSHIP QUALITIES & POSITIVE THINKING’ -2011
- iv. Participated ‘enhance emotional intelligence & strength of life skills workshop on 26th April

2016 at University of Sri Jayewardenepura

- v. Scientific Writing workshop held at the University of Sri Jayewardenepura on 25th October 2013

EXTRA-CURRICULAR ACTIVITIES

University level:

- Treasurer of the Genetic Society, Department of Zoology, University of Sri Jayewardenepura- 2015
- Active Member of the Wild Life Society, Department of Zoology, University of Sri Jayewardenepura- 2015
- Active member on the occasion of World Water Day organized by the Department of Zoology, Faculty of Applied Sciences, University of Sri Jayewardenepura- 2015

School level:

- Member of the Board of Prefect – From January, 2004 to December, 2004

- Sports

- Champion of Volleyball game at the inter-house sports meet – 2002, 2003, 2004 and 2007
- First place of 100<4 athletes at the inter-house sports meet – 2006
- Second place 400<4 athletes at the inter-house sports meet – 2006
- Runner up of Netball game at the inter-house sports meet – 2000, 2002 and 2004