S. DHARANEEDHARAN
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Personal Information

Name	:	S. DHARANEEDHARAN
Father's name	:	R. SUBRAMANIAN
Date of Birth	:	17-11-1980
Gender	:	Male
Marital Status	:	Married
Educational Qualifications	:	M.Sc., Ph.D.
Office Address	:	Assistant Professor, Department of Zoology, G.T.N. Arts College, Karur Road, Dindigul – 624005.
Home Address	:	S. Dharaneedharan, First floor, 28-A, Karuppaiya Pillai Street, N.S. Nagar, Dindigul – 624005. Tamil Nadu, India

RESEARCH INTERESTS

Behavioral Genetics and Molecular Biology; Microbial Biotechnology

SUMMARY OF QUALIFICATIONS

More than 6 years of independent research: 6 months of graduate research, 3.5 year of Ph. D. Research and summer term of industrial research and 4 years of postdoctoral work.

Interdisciplinary research skills: Biochemistry and Molecular Biology, Neurobiology, Population genetics and Aquaculture.

Team-based and collaborative research: Worked on a major research project of the Research Supervisor, alongside project fellow, graduate students and technicians.

Leadership in research: A central role in genetic diversity studies and broodstock feed formulation project and supervision of post-graduate and M. Phil. research projects.

Specific research skills: A). Population genetics, particularly allozyme-biochemical marker, RAPD and Microsatellite-DNA markers (PCR techniques), Gene cloning, characterization and expression analysis and animal cell culture techniques.

Teaching skills: Supervision of postgraduate Life Sciences, Animal Biotechnology students as a teaching assistant and extensive tutorial experience in Life Sciences laboratory.

EDUCATION AND ACADEMIC BACKGROUND

1999-2004 M. Sc. In Life Sciences, Bharathidasan University, INDIA

Jan'2005 to May 2009 Research Scholar, Bharathidasan University, INDIA

Ph. D. Thesis title: "Genetic diversity of the giant prawn *Macrobrachium rosenbergii* with special reference to aquaculture using molecular markers"

Department of Animal Biotechnology, Bharathidasan University, Tiruchirappalli, Tamilnadu, India.

Duties:

1. To assess the constrains and current status of freshwater prawn culture in South-India
2. To study the level and patterns of genetic variation among various farmed populations of *M. rosenbergii* using DNA markers
3. To find an ideal farmed population for the selective breeding wild population
4. To recommend a suitable culture practice for the sustainable prawn culture

Previous Position
Guest Faculty from July 2010 to March 2012

Department of Animal Science, School of Life Sciences, Bharathidasan University, Tiruchirappalli.
Duties:

1. Teaching Biochemistry and Biophysics, Animal Cell Culture and Biostatistics for M.Phil and M.Sc Animal Biotechnology Students.
2. to study learning and memory in goldfish and to screen genes related to learning and memory
3. Characterization of SINE-elements in Indian Bat species

Postdoctoral fellow in an Indo-Italian one year "Young Indian Research Fellow" project, June 2009 to May 2010

Dipartimento di Biologia Molecolare Cellulare Animale, Università di Camerino, Camerino(MC), Italia
Duties:

1. To assess the genes responsible for the suri and huacaya traits in Alpaca, *Lama pacos.*
2. To assess the gene flow between the population of *Euphydryus aurinia,* a marshy butterfly and in turn to study the habitat fragmentation using the SSR markers

Project Fellow March 2005 to March 2007

Department of Animal Science, Bharathidasan University, Tamilnadu, India.

Duties:

1. Allozyme analysis of farm-reared brooders of *M. rosenbergii*
2. DNA extraction and PCR studies of *M. rosenbergii* using 30 RAPD primers and 10 microsatellite primers.

WORK EXPERIENCE

RELEVANT SKILLS AND KNOWLEDGE

Molecular Biology and Genetics: Cloning and expression of gene in *E. coli* system, SDS – PAGE, PCR Techniques, ELISA, Histological Techniques, Comet Assay, Basic Microbiological Techniques, Chromatographic Techniques, Allozyme Electrophoresis, Immunological Techniques, Human Karyotyping, RFLP, Fish cell culture and virus screening assays.

Cell culture techniques: Fish cell lines such as CHSE214, CHSE114, EPC were maintained, used for various toxicology studies, Virological assays (VHSV), and cellular protein purification.

Computer Knowledge:

Operating System- Windows 95 and 98, DOS, UNIX

Programming Language- C, C++, Visual Basic 6.0

Project Profiles- **Soil Analysis and Crop Manipulation in C- language**

Softwares- Population Genetic softwares like POPGENE, Arliqune, TFPGA, GENEPOP, RAPDistance, SPSS, NTSYSpc, GENALIX, STRUCTURE, BOTTLENECK, GENETIX, etc.

Knowledge of Instrument operation: Real Time Thermal cycler (Eppendorf and Bio-Rad master gradiant), UV-Visible Spectrophotometer (Perkin-Elmer), GC-MS, Gel Documentation (Bio-Rad), Speed Vac evaporator, Ultra-Centrifugation, HPLC and inverted fluorescence microscope and so on.

RESEARCH CONTRIBUTIONS

Gene Sequence deposited in GENEBANK: **Accession number:** ***EU394680, JF319151, JF319152, JF319153, JF319154, JF319155, KC191673, KC191674, KC191675, KC191676***

REFEREED JOURNAL PUBLICATIONS

1. S Perumal, MVG Samy, **D Subramanian**. Effect of Novel Therapeutic medicine Swertiamarin from *Enicostema axillare* in zebrafish infected with *Salmonella typhi*; Chemical Biology & Drug Design (2022). https://doi.org/10.1007/s00449-021-02565-z.

2. S Perumal, MV Gopal Samy, **D Subramanian**. In vitro and in silico screening of novel typhoid drugs from endangered herb (*Enicostema axillare*); Journal of Biomolecular Structure and Dynamics, (2022) 1-11. https://doi.org/10.1111/cbdd.14146

3. Perumal, S., Gopal Samy, M.V. & **Subramanian, D***. Selenium nanoparticle synthesis from endangered medicinal herb (*Enicostema axillare*). *Bioprocess Biosyst Eng* **44,** 1853–1863 (2021).

4. Sasidharan, Perumal, Vigneshwari, Madhana, Subramanian, Dharaneedharan, Developmental toxicity, antioxidant, and marker enzyme assessment of swertiamarin in zebrafish (Danio rerio), Journal of Biochemical and Molecular Toxicology (2021). https://doi.org/10.1002/jbt.22843

5. Yeoung Hwan Jang, Subramanian **Dharaneedharan**, Dong –Hwi Kim, Eun-Ho Yoo, Bong Jo Kang, Moon-Soo Heo, (2019). Pathogenicity and Immune Response of Starry Flounder, *Platichthys stellatus*, Infected with *Vibrio anguillarum*. The Israeli Journal of Aquaculture - Bamidgeh, IJA_71.2019.1556, 11 pages.

6. Pallotti, S., Pediconi, D., Subramanian, D., Molina, M. G., Antonini, M., Morelli, M. B., … La Terza, A. (2018). Evidence of post-transcriptional readthrough regulation in FGF5 gene of alpaca. Gene, 647, 121–128. doi:10.1016/j.gene.2018.01.006

7. Yeoung-Hwan Jang*, **Dharaneedharan Subramanian***, Seung-Hwan Won, Moon-Soo Heo, Immune response of olive flounder (*Paralichthys olivaceus*) infected with the myxosporean parasite *Kudoa septempunctata*, Fish and Shellfish Immunology, 67, 172-178, 2017. *share first authorships.

8. Dharaneedharan Subramanian, Min-Sun Kim, Dong-Hwi Kim, Moon-Soo Heo, Isolation,

Characterization, Antioxidant, Antimicrobial and Cytotoxic Effect of Marine Actinomycete, *Streptomyces Carpaticus* MK-01, against Fish Pathogens, Brazilian Archives of Biology and Technology, 60(1), 1-9, 2017.

9. Kim D-H*, **Subramanian D*,** Park S-H., Jang Y-H., Heo M-S**,** 2017. Assessment and potential application of the probiotic strain, *Bacillus amyloliquefaciens*-JFP-2, isolated from fermented seafood-Jeotgal in the flounder *Paralichthys olivaceus* juveniles, *The Israeli Journal of Aquaculture - Bamidgeh*, 69, 13 pages, 2017. *share first authorships.

10. Kim D-H*, **Subramanian D*,** Heo M-S**.,** 2017. Dietary effect of probiotic bacteria, *Bacillus amyloliquefaciens*-JFP2 on growth and innate immune response of *Oplegnathus fasciatus* challenged with *Streptococcus iniae*, *The Israeli Journal of Aquaculture - Bamidgeh*, 69, 10 pages, 2017. *share first authorships.

11. **Ahn M**, Won S, Kang B, Gong P, Yoo E, **Dharaneedharan S**, Jang Y, In vitro effect of two commercial anti-coccidial drugs against myxospores of *Kudoa septempunctata* genotype ST3 (Myxozoa, Multivalvulida), Parasite, 24, 11, 2017.

12. A Ananth, **S Dharaneedharan**, HJ Seo, MS Heo, JH Boo, Soft jet plasma-assisted synthesis of Zinc oxide nanomaterials: Morphology controls and antibacterial activity of ZnO, Chemical Engineering Journal, 322, 742-751, 2017. Impact factor: 3.461.

11 S. Dharaneedharan, MS Heo, Korean Traditional fermented foods-a potential resource of beneficial microorganisms and their applications, Journal of Life Science 26(4), 496-502, 2016.

12. M Chandrasekaran, **D. Subramanian**, E Yoon, T Kwon, SC Chun, Meta-analysis reveals that the genus Pseudomonas can be a better choice of biological control agent against bacterial wilt disease caused by *Ralstonia solanacearum*, The Plant Pathology Journal, 32(3), 216, 2016.

13. Dharaneedharan S., Kim D-H, Park S-H., JangY-H., Balasundaram C., Heo M-S, 2016. Dietary effect of *Lonicera japonica* on immune expression in olive flounder, *Paralichthys olivaceus* challenged with *Vibrio anguillarum*, *The Israeli Journal of Aquaculture - Bamidgeh*, 68, 10 pages, 2016.

14. S. Dharaneedharan, C. Balasundaram and Moon-Soo Heo. Genetic assessments for growth performance in diallel cross of wild and cultured giant freshwater prawn, *Macrobrachium rosenbergii*. *Journal of Applied Aquaculture.* 27(4), 342-364, 2015.

15. Young-Gun Moon, **Subramanian Dharaneedharan**, Dong-Hwi Kim, So-Hyun Park, Moon Soo Heo. Isolation and identification of protease producing bacteria from the intertidal zone in Jeju Island, Korea. *Korean Journal of Microbiology,* 51(4)382-388, 2015.

16. Bong-Jo Kang*, **Subramanian Dharaneedharan***, Yeoung-Hwan Jang*, Moon-Soo Heo. Detection of *Pseudomonas anguilliseptica* from Olive flounder (*Paralichthys olivaceus*) using real-time PCR with TaqMan fluorescent probes, Fish Pathology, 50(1) 1-7, 2015. *share first authorships. Impact factor: 1.064.

17. Young-Gun Moon, **Subramanian Dharaneedharan**, Dong-Hwi Kim, So-Hyun Park, and Moon Soo Heo. Isolation and identification of protease-producing bacteria from the intertidal zone in Jeju Island, Korea. Korean Journal of Microbiology. 51(4), 382-388, 2015.

18. Yeoung-Hwan Jang*, **Subramanian Dharaneedharan***, Moon-Soo Heo. Efficacy of formalin killed *Pseudomonas anguilliseptica* vaccine on immune gene expression and protection in farmed olive flounder, *Paralichthys olivaceus. Vaccine, 32(16), 1808-1813,* 2014. Impact factor: 3.49. *equal authorships.

19. S. Dharaneedharan, Yeuong-Hwan Jang, Bong-Jo Kang, Moon-Soo Heo. Dietary effect of *Rubus coreanus* ethanolic extract on immune gene expression in whiteleg shrimp, *Penaeus vanammei*. *Fish and shellfish Immunology.* 35(3), 808–814, 2013. Impact factor: 3.32.

20. S. Dharaneedharan, C. Balasundaram., Moon-Soo Heo. Microsatellite loci in the domesticated giant

freshwater prawn, *Macrobrachium rosenbergii*: a population genetic assessment tool. *Molecular Ecology Resources – PGR,* 13(3), 546-549, 2013. Impact factor: 3.062

21. S. Dharaneedharan, Ramasamy Harikrishanan**,** Chellam Balasundaram**,** Moon-Soo Heo**,** In vitro antioxidant and antimicrobial activity of *Rubus coreanus* ethanolic extract: a potent biotherapeutic component for Aquaculture, *The Israeli Journal of Aquaculture - Bamidgeh*, 65, 9 pages, 2013. Impact factor: 0.944

22. Dharaneedharan Subramanian, Rajkumar Ramalingam, Radhakrishnan Karuppasamy, Thanga Leela Subramanian, Balasundaram Chellam and Emmanuvel Rajan Koilmani. Upregulation of the β-form of 14-3-3 protein in telencephalon of goldfish (*Carassius auratus*): its possible role in spatial learning. *Neuro Report* 23(14), 840–845, 2012. Impact factor: 1.404.

23. Antony Ananth, **Dharaneedharan Subramanian**, Moon-Soo Heo and Young Sun Mok. 2015. Copper oxide nanomaterials: Synthesis, characterization and structure-specific antibacterial performance. *Chemical Engineering Journal,* 262, 179-188, 2014. Impact factor: 3.461.

24. Antony Ananth, **Dharaneedharan Subramanian**, Mani Sanjeeva Gandhi, Moon-Soo Heo and Young Sun Mok. Novel RuO2 nanosheets – Facile synthesis, characterization and application. *Chemical Engineering Journal,* 223, 729-736, 2013. Impact factor: 3.461

25. Yeoung-Hwan Jang, **Subramanian Dharaneedharan**, Bong-Jo Kang, Moon-Soo Heo. Isolation and infectious temperature optimization of genetically similar VHSV isolates in farmed olive flounder, *Paralichthys olivaceus. The Israeli Journal of Aquaculture – Bamidgeh*, 66, 7 pages, 2013 Impact factor: 0.944

26. Man-Chul Kim, **S. Dharaneedharan**, Young-Gun Moon, Dong-Hwi Kim, Hong-Joo Son, and Moon-Soo Heo, Isolation and Identification of Oceanisphaera sp. JJM57 from Marine Red *Algae Laurencia* sp. (Ceramiales: Rhodomelaceae), Korean Journal of Microbiology, 49(1), 58-63, 2013.

27. Emmanuvel Rajan, Ganesh. A, **Dharaneedharan, S**, Radhakrishnan. K. Spatial learning induced egr-1 expression in telencephalon of goldfish *Carassius auratus. Fish Physiol Biochem.* 37(1), 153-9, 2010. Impact factor: 1.52

28. Antony Joseph Velanganni, A., **Dharaneedharan, S**, Geraldine, P and C. Balasundram, C. Dietary supplementation of vitamin A, C and E prevents p-dimethylaminoazobenzene-induced hepatic DNA damage in rats. *Indian Journal of Biochemistry and Biophysics*, 44, 157-163, 2007. Impact factor: 1.142

29. Ramasamy Harikrishnan, Chellam Balasundaram, Young-Gun Moon, Man-Chul Kim, Ju-Sang Kim, **Dharaneedharan, S**, and Moon-Soo Heo. Phytotherapy of Ulcerative dermatitis induced by *Aeromonas hydrophila* infection in goldfish (*Carassius auratus*). Acta Veterinaria Hungarica. 58(1):29-37, 2010. Impact factor: 1.098

30. Ramasamy Harikrishnan, Chellam Balasundaram, **Subramanian Dharaneedharan**, Young-Gun Moon, Man-Chul Kim, Ju-Sang Kim, and Moon-Soo Heo. Effect of plant active compounds on immune response and disease resistance in *Cirrhina mrigala* infected with fungal fish pathogen, *Aphanomyces invadans*. *Aquaculture Research*, 40(10), 1170-1181, 2009. Impact factor: 1.23

31. Harikrishnan R, Kim JS, Kim MC, **Dharaneedharan S**, Kim DH, Hong SH, Song CY, Balasundaram C, Heo MS. Effect of dietary supplementation with *Suaeda maritima* on blood physiology, innate immune response, and disease resistance in olive flounder against *Miamiensis avidus*. Experimental Parasitology, 131(2):195-203, 2012. Impact factor: 2.122

BOOK CHAPTERS

V. La Manna, A. La Terza, **S. Dharaneedharan**, S. Ghezzi, S. Arumugam Saravanaperumal, N. Apaza, T. Huanca, R. Bozzi and C. Renieri. 2012. A microsatellite study on the genetic distance between Suri and Huacaya phenotypes in Peruvian alpaca (*Vicugna pacos)*. In *Fibre production in South American camelids and other fibre animals.* Part 3, 151-159, DOI: 10.3920/978-90-8686-727-1_20

PAPERS COMMUNICATED/SUBMITTED FOR PUBLICATION

1. **S. Dharaneedharan,** Antonietta La Terza. Population genetic analysis of the marshy butterfly, *Euphydryus aurinia* using four microsatellite marker in relation to ecological fragmentation. *Molecular Ecology.* October 2020.

Formal training:

- **"ASM–FAO-UNSCEO funded International Workshop** on **Molecular Techniques in Aquaculture and Seafood Safety"** KVAFSU, College of Fisheries, Mangalore. February 13 -17, 2006.

- *Basic Immunological studies* under the guidance of **Dr**. **M. Arumugam,** Prof.& Head, Department of Zoology, **University of Madras**, Guindy Campus , Chennai, during May-June 2000.

- *Summer Training* undergone under the guidance of **Prof. G. Sekeran & Dr.(Mrs). A. Gnanamani** at **CLRI, Chennai,** during June1st to July 18th, 2003.

ORGANIZING COMMITTEE MEMBER / SECRETARY

Organising Member for the UGC Sponsored - State Level Seminar **"Gene and Environmental Interaction (GEI-19)**" conducted by the Department of Zoology, G.T.N. Arts College (Autonomous), Dindigul on 4th March 2019.

Organising Secratory cum Resource Person in the UGC Sponsored - State Level Workshop "**Hands on Training in PCR Techniques (HTPT)" "Gene and Environmental Interaction**" conducted by the Department of Zoology, G.T.N. Arts College (Autonomous), Dindigul on 5th March 2019.

Organising Member for the Tamilnadu History Congress – "**26th Annual Session 2019**" conducted by the Department of History, G.T.N. Arts College (Autonomous), Dindigul on 11-13th October 2019.

Organising Member for the District Level Interschool "**Science Exhibition**" conducted by the Departments of Mathematics, Physics, Chemistry and Zoology, G.T.N. Arts College (Autonomous), Dindigul on 5th November 2019.

Organising Secretary for the International Webinar Series on "**Recent Trends in Life Sciences"** conducted by the Department of Zoology, G.T.N. Arts College (Autonomous), Dindigul on 4th July 2020.

PROFESSIONAL POSITION HELD

Criterion convener for Research, innovation and extension of I.Q.A.C, G.T.N. Arts College (Autonomous), Dindigul.

External Subject Expert in Ph.D candidate selection on February 18th 2020, at PG and Research Department of Zoology, Arulmigu Palaniandavar College of Arts and Culture, Palani.

External examiner for Final year PG Zoology Students Dissertation, Department of Animal Science, Bharathidasan University, Tiruchirappali – 620024.

NATIONAL AND INTERNATIONAL WEBINAR / CONFERENCES ATTENDED

Participation in the "National Level Online 7 - Day Faculty Development Programme on Revised Accreditation Framework (RAF) of NAAC – A Paradigm Shift for Strategic Enhancement of Higher Education in India" organized by the Internal Quality Assurance Cell (IQAC), Rajapalayam Rajus' College, Rajapalayam from 08.06.2020 to 15.06.2020

Participated in the "2nd International workshop, "Biomedical Application in Translational Research (BATR-2020)"" organised by the Department of Biomedical Sciences, Alagappa University, Karaikudi from 18.05.2020 to 19.05.2020.

Participated in A One-day PMMMNMTT (an UGC-MHRD Project, Govt. of India) Sponsored Workshop on "Opportunities for Funding for Science Teachers of Higher Education Institutions" held at Manonmaniam Sundaranar University, Tirunelveli, Tamilnadu on 22nd July 2019.

Poster presented in ISBENS 2105, International Symposium on Biological Engineering and Natural Sciences, April 22-24, 2015 at Chengdu, China.

Oral presentation in ARS2014, AFOB Regional Symposium 2014, February 9-11, 2014 at Kuala Lampur, Malaysia.

Paper presented in the 4th Regional AFOB symposium 2013, 'Bioenergy, Biorefinery and Beyound', January 17-19, 2013 at Chiang Mai, Thailand.

Poster presented in IBS 2012, 15th International Biotechnology Symposium and Exhibition held on 16-21 September 2012, at EXCO, Daegu, Republic of Korea.

Paper presented in an International annual meeting of Marine and Environmental biochemistry, UNICRAM, San Benedito, Italy. May 20-21, 2010.

National Symposium on Emerging Trends in Modern Biology, Dept. of Plant Biology and Biotechnology, Loyola College, Chennai. January 10-12, 2002.

XX National Symposium on Reproductive Biology and Comparative Endocrinology. Dept. of Animal Science, Bharathidasan University. January 7-9, 2002.

*National Symposium on Changing Horizons in Genetics – Human Welfare***.** Dept. of Genetics, Osmania University, Hyderabad. December 30-31, 2001.

*National Symposium on Marine Algal Research in India – Prospect and Retrospect***.** NFMC, Bharathidasan University. August 16-18, 2001.

*International Conference on Advanced Technologies in Fisheries and Marine Sciences***,** ICAS, M.S. University, South India**.** February 2-4, 2001

GENERAL INTERESTS

PCR techniques, Blotting techniques, Behavioral Studies, Genomics, Molecular evolution of genes and proteins.

LANGUAGES

Speak, read and write well in English and Tamil.