

# D. Balasubramanian, Ph.D.

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## Permanent address

Door No. 1B/283,  
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## Present address

Associate Professor & HoD,  
Department of Botany,  
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Arunachal University of Studies (AUS),  
NH-52, Namsai, Arunachal Pradesh - 792103.

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## ACADEMIC SYNOPSIS

**2022 to Present Associate Professor,**

**Department of Botany,  
Faculty of Science and Technology,  
Department of Botany  
Arunachal University of Studies  
NH-52, Namsai, Arunachal Pradesh - 792103.**

**2021 - 2022**

**Research Associate  
State Climate Change Cell (SCCC), O/o PCCF Complex,  
Department of Environment & Forests, Government of Arunachal Pradesh,  
Zero-Point Tinali, Itanagar - 791111  
Principal Investigator: Dr. Dohu Robin**

**2015 - 2019**

**Postdoctoral Fellow (CAS-President's International Fellowship Initiative)  
Global Climate Change Group  
Kishuangbanna Tropical Botanical Garden,  
Chinese Academy of Sciences (CAS),  
Menglun, Mengla, Yunnan, China 666303  
Advisor: Prof. Dr. ZHANG Yiping,  
Research: "SOM decomposition under climate change in tropical forests in Southwest China"**

**2006 - 2011**

**Ph.D. Botany  
Rajiv Gandhi University  
Rono-Hills, Doimukh, Arunachal Pradesh, India  
Advisors: Dr. A. K. Das (PI) & Dr. A. Arunachalam (co-PI)  
Thesis title: "Ecological Studies on *Eichhornia crassipes* (Mart.) Solms. and its  
Utilization in Soil nutrient Management and Crop production"**

**2004 - 2005**

**M.Phil Botany  
Ayya Nadar Janaki Ammal College (Madurai Kamaraj University)  
Sivakasi, Tamil Nadu, India  
Advisor: Dr. V. Ganesan  
Dissertation title: "Numerical Phenetic Taxonomy of certain Members in Leguminosae"**

**2002 - 2004**

**M.Sc Botany  
Ayya Nadar Janaki Ammal College (Madurai Kamaraj University)  
Sivakasi, Tamil Nadu, India  
Advisor: Dr. K. Lingakumar  
Project title: "Characterization of anatomical and physiological adaptations in *Cassytha  
filiformis* L. - an advanced obligate hemiparasite on *Morinda tinctoria* Roxb."**

**1999 - 2002**

**B.Sc Botany  
Ayya Nadar Janaki Ammal College (Madurai Kamaraj University)  
Sivakasi, Tamil Nadu, India**

## RESEARCH ASSIGNMENTS

<b>Associate Professor</b> – Arunachal University of Studies, Arunachal Pradesh	2022 – Present
<b>Research Associate</b> – State Climate Change Cell (SCCC), Arunachal Pradesh	2021 – 2022
<b>Postdoctoral Fellow</b> – Xishuangbanna Tropical Botanical Garden (CAS)	2015 – 2019
<b>Senior Research Fellow</b> – Indian Council of Agricultural Research	2012 – 2015
<b>Research Fellow</b> – NERIST, Nirjuli, Arunachal Pradesh	2009 – 2011
<b>Senior Research Fellow</b> – NERIST, Nirjuli, Arunachal Pradesh	2006 – 2009
<b>Project Fellow</b> – NERIST, Nirjuli, Arunachal Pradesh	2005 – 2006

## RESEARCH INTERESTS

My research interests fall within the broad area of ecosystem ecology. My interest includes the investigation of biogeochemistry in terrestrial and aquatic ecosystems, impacts of present and past land use on soil nutrient and organic matter dynamics, microbial communities, and the role plants in mediating GHG emissions from both natural and artificial wetlands including rice paddy fields. Other interest includes ecosystem function, plant systematics, forest ecology and biodiversity conservation.

- Ecosystem ecology
- Biogeochemistry
- Invasive species
- Agroecosystem
- Plant-Soil-Microbe interactions
- Trace Gas (GHGs) emission
- Biodiversity and conservation
- Plant ecology
- Natural Resources Management

## TEACHING INTERESTS

My teaching interests expand from general biology to environmental science. Specifically, am interested in ecology, ecosystem ecology, biogeochemistry, and instrumentation. I integrate traditional educational methods with recent technologies to teach students. Since ecology and environmental science involves field investigations, I include frequent field visits to explain the real-time ecosystem processes to see and understand. During my Ph.D. and Postdoctoral research, I was involved in teaching as well as student mentoring.

## TEACHING EXPERIENCE

### **ASSOCIATE PROFESSOR (BOTANY), Arunachal University of Studies. 2022 – Present**

- Advance Plant Ecology
- Biodiversity (Microbes, Algae, Fungi and Archegoniate)
- Plant Anatomy and Embryology
- Herbal Technology
- Environmental Management and Biodiversity Conservation

### **POSTDOCTORAL FELLOW, Xishuangbanna Tropical Botanical Garden (CAS). 2015 – 2019**

- Soil ecology and biogeochemistry
- Student mentoring

### **TEACHING ASSISTANT, NERIST, Nirjuli, Arunachal Pradesh. 2007 – 2011**

- Environmental science
- Plant physiology
- Student mentoring

## RESEARCH GRANTS

1. Principal Investigator, *Molecular characterization of Soil Organic Matter Decomposition and Potential response to Climate Change in Four different types of Forests in South-West China: Chemical Vs Biological signatures*. 340,000 RMB (\$51,250), The Research Fund for International Young Scientists, National Natural Science Foundation of China (NSFC) (国家自然科学基金委员会). From 01 January 2018 to 31 December 2019, **Grant No. 31750110470**
2. Principal Investigator, *Transformation of natural tropical rainforests into plantations in Xishuangbanna, SW China: Can soil organic matter equilibrate back to native forest stage after several decades?* (西双版纳不同土地利用类型的土壤有机质研究). 80,000 RMB (\$12,000) from China Postdoctoral Science Foundation (中国博士后科学基金会) for the period of November 2016 to November 2017. **Grant No. 2016M600754**.
3. Principal Investigator, *Characterization, and decomposition of soil organic matter (SOM) effect on*

*CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O flux in the tropical rainforest and rubber forest under changing climate.* Funded by Chinese Academy of Sciences – President’s International Fellowship Initiative (CAS-PIFI). 400,000 RMB (\$60,250). From 29 November 2015 to 30 November 2017. **Grant No. 2015PE007.**

- Principal Investigator, *Spatial distribution of soil organic carbon (SOC) and its responses to environmental factors in Yunnan Province, Southwest China.* Funded by Xishuangbanna Tropical Botanical Garden (XTBG), Chinese Academy of Sciences. 100,000 Yuan RMB (\$15,000). From 22 October 2015 to 30 September 2017.

## PROFICIENCY IN ENGLISH LANGUAGE

<b>Reading</b>	Excellent [Professional language and Medium of education]
<b>Conversing</b>	Excellent [Professional language and Medium of education]
<b>Writing</b>	Excellent [Professional language and Medium of education]

## ACADEMIC DISTINCTIONS

- **Eminent Scientist Award 2020** for the exemplary work and contribution in the field of Ecosystem services and Environmental Biotechnology from The Society for Science of Climate Change and Sustainable Environment (SSCE), New Delhi, India
- **Chinese Academy of Sciences (CAS)-President's International Fellowship Initiative** for Postdoctoral Research, 2015, work at Xishuangbanna Tropical Botanical Garden (XTBG), CAS.
- **Thirumathi Madhana Ramamurthy Gold medal** for securing first place in M. Sc Botany in the Terminal Examinations for the academic years 2002 – 2004.
- **Thirumathi P. Nagammal Gold medal** for securing first place in B. Sc Botany in the Terminal Examinations for the academic years 1999 – 2002.

## RESEARCH EXPERIENCE

### RESEARCH ASSOCIATE, State Climate Change Cell (SCCC), Arunachal Pradesh. 2021 – 2022

- Scientific assessment of the vulnerability of the Himalayan ecosystem to short- and long-term variability in the climate
- Research for framing evidence-based policy measures to protect the fragile Himalayan ecosystem
- Time-bound action programmes at state level in order to sustain the ecological resilience and ensure the continued provision of key ecosystem services.

### POSTDOCTORAL FELLOW, Xishuangbanna Tropical Botanical Garden (CAS). 2015 – 2019

- Evaluation of Soil organic matter in different forest types of Yunnan Province, Southwest China
- Decomposition of SOM and GHGs emission
- Spatial and temporal dynamics of SOC in Yunnan Province

### SENIOR RESEARCH FELLOW, Indian Council of Agricultural Research. 2012 – 2015

- Project management and data analysis in National Initiative on Climate Resilient Agriculture (NICRA) programme
- Assisting in divisional activities at Natural Resource Management division, ICAR
- Research paper writing and publishing in peer-reviewed journal.

### RESEARCH FELLOW, NERIST, Nirjuli, Arunachal Pradesh. 2009 – 2011

- Tribal livelihood assessment in high altitude Himalayan region
- Soil nutrient dynamics in high altitude paddy-cum-pisciculture (*Aji-nyyii*)
- Developing restoration and monitoring plans to characterize landuse pattern, wetlands and watersheds using geospatial techniques
- Linking biodiversity with traditional ecological knowledge in ‘Apatani’ Cultural Landscape.

### SENIOR RESEARCH FELLOW, NERIST, Nirjuli, Arunachal Pradesh. 2006 – 2009

- Conducted livelihood survey in relation to wetland ecology in Burachapori wildlife sanctuary, South bank of Brahmaputra River, Assam
- Water quality and sediment analyses; physical, chemical, and microbial assessment
- Litter dynamics, decomposition, and nutrient biogeochemistry in flood plain riparian forests of Brahmaputra River basin.

### PROJECT FELLOW, NERIST, Nirjuli, Arunachal Pradesh. 2005 – 2006

- Agricultural waste management practices in Arunachal Pradesh
- Impact of soil mulching and burning crop residues on soil properties and crop production

- Nutrient dynamics in shifting/slash and burn agricultural system (*Jhum*), traditional homegardens and agroforestry systems in eastern Himalayan regions, India
- Trained rural farmers about composting techniques and waste management practices

## RESEARCH PUBLICATIONS

### *Ecosystem Biogeochemistry*

- 2022 Bibi, F., **Balasubramanian, D.**, Ilyas, M., Sher, J., Samoon, H.A., Khalid, M.H.B., Shah, M., Alharby, H.F., Majrashi, A., Alghamdi, S.A., Hakeem, K.R., Rather, S.A., 2022. Seasonal variations of fine root dynamics in rubber-*Flemingia macrophylla* intercropping system in southwestern China. *Plants*. (*In Press*). **IF - 4.658.**
- 2022 Zhou, L., Zhang, X., Zhang, Y.P., Song, Q.H., Myo, S.T.Z., Zhou, R.W., Lin, Y.X., Liu, Y.T., Bai, K.C., Gnanamoorthy, P., and **D. Balasubramanian**. 2022. The cumulative drought exert disruptive effects on tropical rainforests in the northern edge of Asia - Based on decadal dendrometric measurements and eddy covariance method. *Agricultural and Forest Meteorology* 316, 108858. <https://doi.org/10.1016/j.agrformet.2022.108858>. **IF - 6.424**
- 2021 Zhou, W.J., D. Xi, Y.T. Fang, A. Wang, L.Q. Sha, Q.H. Song, Y.T. Liu, L.G. Zhou, R.W. Zhou, Y.X. Lin, J.B. Gao, **D. Balasubramanian**, Y. Deng, W.F. Zhang and Y.P. Zhang, 2021. *Microbial processes responsible for soil N<sub>2</sub>O production in a tropical rainforest, illustrated using an in situ <sup>15</sup>N labelling approach.* *Catena*, 202, 105214. <https://doi.org/10.1016/j.catena.2021.105214>. **IF - 6.367**
- 2020 **Balasubramanian, D.**, Y.P. Zhang, J. Grace, L.Q. Sha, Y.Q. Jin, L.G. Zhou, Y.X. Lin, R.W. Zhou, J.B. Gao, Q.H. Song, Y.T. Liu and W.J. Zhou. 2020. *Soil organic matter stability as affected by the conversion of natural tropical rainforest to monoculture rubber plantations under acric ferralsols.* *Catena*, 195, 104753. [10.1016/j.catena.2020.104753](https://doi.org/10.1016/j.catena.2020.104753). **IF - 6.367**
- 2020 **Balasubramanian, D.**, W.J. Zhou, H.L. Ji, J. Grace, X.L. Bai, Q.H. Song, Y.T. Liu, L.Q. Sha, X.H. Fei, X. Zhang, J.B. Zhao, J.F. Zhao, Z.H. Tan, Y.P. Zhang. 2020. *Environmental and management controls of soil carbon storage in grasslands of southwestern China.* *Journal of Environmental Management*, 254, 109810. [10.1016/j.jenvman.2019.109810](https://doi.org/10.1016/j.jenvman.2019.109810). **IF - 8.910**
- 2019 Zhou, L.G., Y.T. Liu, Y.P. Zhang, L.Q. Sha, Q.H. Song, W.J. Zhou, **D. Balasubramanian**, P. Gnanamoorthy, J.B. Gao, Y.X. Lin, J. Li, R.W. Zhou, T.Z.M. Sai, X.H. Tang, J. Zhang, P. Zhang, S.S. Wang and J. Grace. 2019. *Soil respiration after six years of continuous drought stress in the tropical rainforest in Southwest China.* *Soil Biology and Biochemistry*, 138: 107564. [10.1016/j.soilbio.2019.107564](https://doi.org/10.1016/j.soilbio.2019.107564). **IF - 8.546**
- 2019 Jin, Y.Q., J. Li, C.G. Liu, Y.T. Liu, Y.P. Zhang, Q.H. Song, L.Q. Sha, **D. Balasubramanian**, A.G. Chen, D.X. Yang, and P.G. Li. 2019. *Precipitation reduction alters herbaceous community structure and composition in a savanna.* *Journal of Vegetation Science*, 30: 821-831. [10.1111/jvs.12766](https://doi.org/10.1111/jvs.12766). **IF - 3.389**
- 2018 Lin, Y.X., J. Grace, W. Zhao, Y.X. Dong, X. Zhang, L.G. Zhou, X.H. Fei, Y.Q. Jin, J. Li, M.N. Syed, **D. Balasubramanian**, W.J. Zhou, Y.T. Liu, Q.H. Song, L.Q. Sha, Y.P. Zhang. 2018. *Water-use efficiency and its relationship with environmental and biological factors in a rubber plantation.* *Journal of Hydrology*, 563: 273-282. [10.1016/j.jhydrol.2018.05.026](https://doi.org/10.1016/j.jhydrol.2018.05.026). **IF - 5.722**
- 2016 Dutta, J., **Balasubramanian, D.**, A. Arunachalam and Sorokhaibam Sureshkumar Singh, 2016. *Methane (CH<sub>4</sub>) Emission from High Altitude Wetland Rice-cum-fish Integrated Agriculture System in Eastern-Himalayan Foothills.* *Climate Change and Environmental Sustainability* 4(1): 68-75. [10.5958/2320-642X.2016.00009.0](https://doi.org/10.5958/2320-642X.2016.00009.0), ISSN: 2320-6411.
- 2016 **Balasubramanian, D.**, K. Arunachalam and A. Arunachalam, 2016. *Human-induced Land Use/Land-cover Change and Bioresource Management in Bura Chapori Wildlife Sanctuary in North-East India.* *Climate Change and Environmental Sustainability* 4(1): 28-37. ISSN: 2320-6411.
- 2015 **Balasubramanian, D.**, K. Arunachalam and A. Arunachalam, 2015. *Soil microbial and biochemical properties as affected by floods in different landuse systems of Burachapori Wildlife Sanctuary, northeast India.* *Tropical Ecology* 56(3): 289-302. ISSN: 0564-3295. **IF - 0.462**
- 2014 **Balasubramanian, D.**, K. Arunachalam and A. Arunachalam., 2014. *Ecology and Management of Eichhornia crassipes (Mart.) Solms. - A Mini Review.* *International Journal on Environmental Sciences*, 5(2): 205-220. ISSN: 0254-8704.
- 2014 A. Arunachalam, **D. Balasubramanian**, K. Arunachalam, J.C. Dagar and B.M. Kumar, 2014. *Wetland based agroforestry systems: Balancing between carbon sink and source.* *In: Agroforestry Systems in India: Livelihood Security & Ecosystem Services*, J.C Dagar, A. Arunachalam and A.K. Singh (Eds.), *Advances in Agroforestry (Springer)*, Vol. 10, pp 333-343. DOI: 10.1007/978-81-322-1662-9\_10. ISBN 978-81-322-1661-2.
- 2013 **D. Balasubramanian**, K. Arunachalam, A. Arunachalam and A. K. Das, 2013. *Water hyacinth [Eichhornia crassipes (Mart.) Solms.] engineered soil nutrient availability in a low-land rainfed rice farming system of northeast*

- India. *Ecological Engineering*, 58: 3-12. DOI: 10.1016/j.ecoleng.2013.06.001. IF - 4.035
- 2013 D. Balasubramanian, K. Arunachalam, A. Arunachalam and A. K. Das. 2013. Effect of water hyacinth [*Eichhornia crassipes* (Mart.) Solms.] mulch on soil microbial properties in lowland rainfed rice-based agricultural system in northeast India. *Agricultural Research (Springer)*, 2(3): 246-257. DOI: 10.1007/s40003-013-0073-7.
- 2012 D. Balasubramanian, A. Arunachalam, A. K. Das and K. Arunachalam. 2012. Decomposition and Nutrient Release of *Eichhornia crassipes* (Mart.) Solms. under different trophic conditions in wetlands of the eastern Himalayan foothills, Arunachal Pradesh, India. *Ecological Engineering*, 44: 111-122. DOI: 10.1016/j.ecoleng.2012.03.002. IF - 4.035
- 2012 S. Tangiang, A. Arunachalam, K. Arunachalam, S. Deb and D. Balasubramanian, 2012. Earthworms (*Perionyx excavates* Perr.), cowdung, and leaf residues alter soil physico-chemical and microbial properties in a traditional agroecosystem of Arunachal Pradesh. *Journal of Tropical Agriculture*, 50 (1-2): 76-79.
- 2011 D. Balasubramanian, A. Arunachalam, A. K. Das and K. Arunachalam, 2011. Nutrient accumulation pattern of *Eichhornia crassipes* Mart. (Solms.) in natural wetlands with different trophic condition. In: *Water Pollution and Management*, D. S. Malik, S. Kumar and U. Bharti (Eds.), 1<sup>st</sup> Ed., Biotech Books, New Delhi, India, pp. 30 - 56. ISBN: 9788176222273.
- 2010 P. Bordoloi, D. Balasubramanian, A. Arunachalam, K. Arunachalam and S. C. Garkoti, 2010. Sustainable Crop Production through Organic Farming. In: *Natural Resources Management in Northeast India: linking ecology, economics & ethics*. A. Arunachalam and K. Arunachalam, (Eds.), DVS Publishers, Guwahati, Assam, India, pp. 289-294. ISBN: 9788186307304.
- 2007 P. Bordoloi, D. Balasubramanian, A. Arunachalam, K. Arunachalam and S. C. Garkoti, 2007. Agriculture Waste management for sustainable crop production: A case study in Arunachal Pradesh. In: *Biodiversity Conservation: the Post-Rio scenario in India*, B. K. Dutta., A.K. Das and P. Choudhury (Eds.), Avishek Printers and Publishers, Silchar, Assam, India.
- 2006 K. Lingakumar, D. Balasubramanian, S. K. G. Sundar and J. Prakash, 2006. Effect of *Ulva lactuca* crude extract on growth and biochemical characteristics in *Cyamopsis tetragonoloba* L. and *Phaseolus mungo* L. *Journal of Seaweed Research and Utilization*, 28(1): 75-80.
- 2006 K. Lingakumar, M. Syed Ali Fathima and D. Balasubramanian, 2006. The interaction of Atrazine and UV-B (280-320nm) radiation on growth and biochemical characteristics of *Sorghum vulgare* Roxb. and *Gossypium hirsutum* L. In: *Plant Biotechnology*, N. Jayabalan (ed.), A.P.H Publications, New Delhi, India. pp. 317-336. ISBN: 8176489816.
- Plant ecology and Biodiversity conservation**
- 2022 P. Bordoloi and D. Balasubramanian, 2022. The Nyishi Tribe and their Traditional Agricultural Practices in Papum Pare District of Arunachal Pradesh, India: A study. *Scientific Research Journal of India*, 6(1): 54-61.
- 2017 J. Dutta, O. Muang, D. Balasubramanian, G. Pangging, A. Arunachalam, 2017. Sacred Groves of Ziro Valley Dominated by Apatani Tribes in Arunachal Pradesh. *Indian Journal of Hill Farming*, 30(1): 132 - 138.
- 2016 D. Balasubramanian, K. Arunachalam and A. Arunachalam. 2016. Dioecious *Caesalpinia bonduc* (L.) Roxb. calls for conservation in Burachapori Wildlife Sanctuary. *Tropical Ecology* 57(1): 119-124. ISSN: 0564-3295. IF - 0.462
- 2015 T. Tabin, D. Balasubramanian and A. Arunachalam. 2015. Influence of Canopy Pruning on Orange Growth and Rhizome Yield of Intercrop Ginger under Agri-Horticulture System. *Indian Journal of Hill Farming*, 28(1): 73-76.
- 2014 T. Tabin, D. Balasubramanian and A. Arunachalam. Influence of Plant Spacing, Seed Rhizome Size and Tree Canopy Environment on the Incidence of Rhizome Rot in Ginger. *Indian Journal of Hill Farming*, 27(2): 49 - 51.
- 2014 D. Balasubramanian, K. Arunachalam and A. Arunachalam. 2014. Phytosociological Studies in Wetlands of Burachapori Wildlife Sanctuary, Assam-with special reference to Medicinal Plants. *Indian Journal of Unani medicine* 7(2): 129 - 135.
- 2014 D. Balasubramanian, K. Lingakumar and A. Arunachalam. 2014. Characterization of anatomical and physiological adaptations in *Cassytha filiformis* L. - an advanced obligate hemiparasite on *Morinda tinctoria* Roxb. *Taiwania* 59(2): 98-105. DOI: 10.6165/tai.2014.59. IF - 0.647
- 2013 D. Balasubramanian, K. Arunachalam and A. Arunachalam. 2013. Occurrence of Critically Endangered Pteridophyte *Helminthostachys zeylanica* (L.) Hook. in Burachapori Wildlife Sanctuary, Northeast India. *American Fern Journal*, 103(1): 49-52. DOI: 10.1640/0002-8444-103.1.49. IF - 0.586
- 2013 D. Balasubramanian, K. Arunachalam and A. Arunachalam. 2013. Policy Views on Conservation and Management of Wetlands. *Current Science*, 104(5): 569. IF - 0.725
- 2012 G. Pangging, J. Dutta, D. Balasubramanian, O. Muang, A. Arunachalam and M.L. Khan. 2012. Ziro Valley and the Surrounding Hills: A Mega-cultural Landscape. In: *UNESCO Synthesis Volume, Cultural Landscapes:*

- The basis for linking biodiversity conservation with the sustainable development*, P.S. Ramakrishnan, K.G. Saxena, K.S. Rao and G. Sharma (Eds.), 1<sup>st</sup> Ed., New Delhi, India, pp. 37–46. **ISBN: 978-81-89218-47-8.**
- 2012 J. Dutta, O. Muang, **D. Balasubramanian**, F.M. Wann, G. Pangging and M.L. Khan. 2012. *The 'Tani' Megacultural Landscape*. **In: UNESCO Synthesis Volume, Cultural Landscapes: The basis for linking biodiversity conservation with the sustainable development**, P.S. Ramakrishnan, K.G. Saxena, K.S. Rao and G. Sharma (Eds.), 1<sup>st</sup> Ed., New Delhi, India, pp. 47 – 58. **ISBN: 978-81-89218-47-8.**
- 2010 Dhruva Sharma, **D. Balasubramanian** and A. Arunachalam. *Bio-ethanol Production from Lemna gibba L.* **Current Science**, 98(9): 1162-1163. **IF – 0.725**
- 2010 **D. Balasubramanian**, R. Sarmah and A. Arunachalam. *Wetland Resources Utilization in Burachapori Wildlife Sanctuary: Community, Conflicts and Conservation*. **In: Natural Resources Management in Northeast India: linking ecology, economics & ethics**. A. Arunachalam and K. Arunachalam, (Eds.), DVS Publishers, Guwahati, Assam, India, pp. 51–63. **ISBN: 9788186307304.**
- 2009 **D. Balasubramanian** and A. Arunachalam. *Bio – Fuel Cropping: Scenario and Challenges in North East India*. **In: Proceedings of Regional Seminar on Bio – Fuels in North Eastern India: Issues and Prospects**. Pradip Lingfa (Ed.), Organised by Mechanical Engineering Department, NERIST (Deemed University), Nirjuli, Itanagar, Arunachal Pradesh, March 20 – 21, pp 45–54.
- 2009 A. Arunachalam, **D. Balasubramanian** and K. Arunachalam, 2009. *Cultivation of Jatropha Curcas L. A Prospect for North East India*. **In: Proceedings of Regional Seminar on Bio – Fuels in North Eastern India: Issues and Prospects**. Pradip Lingfa (Ed.), Organised by Mechanical Engineering Department, NERIST (Deemed University), Nirjuli, Itanagar, Arunachal Pradesh, March 20–21, pp 9 - 16.
- 2008 **D. Balasubramanian**, A. Arunachalam and K. Arunachalam. *Angiosperm Diversity in Riparian Zones of some Basin Wetlands in Arunachal Pradesh*. **In: Forest Biodiversity-Volume II**, K. Muthuchelian, S. Kannaiyan and Dr. A. Gopalam (Eds.) 1<sup>st</sup> Ed., Associated Publishing Company, New Delhi, India, pp. 240-245. **ISBN: 8185211779.**
- 2008 **D. Balasubramanian**, V. Ganesan and A. Arunachalam. *Numerical Phenetic Taxonomy of Certain Members in Leguminosae*. **In: Forest Biodiversity-Volume II**, K. Muthuchelian, S. Kannaiyan and A. Gopalam (Eds.) 1<sup>st</sup> Ed., Associated Publishing Company, New Delhi, India, pp. 287-299. **ISBN: 8185211779.**

## PROFESSIONAL TRAINING

1. *“Use of Simulation Modelling in Climate Change Research: Special reference to Natural Resource Management”* from 3<sup>rd</sup> October 2012 to 12<sup>th</sup> October 2012, Indian Institute of Soil Science (IISS), Indian Council of Agricultural Research (ICAR), Bhopal. DNDC, CENTURY, APSIM and DSSAT simulation model.
2. *“Remote sensing and GIS - Technology and Applications”* from 6<sup>th</sup> June 2011 to 26<sup>th</sup> August 2011, National Remote Sensing Centre (NRSC), Department of Space, Indian Space Research Organisation (ISRO), Hyderabad. Remote Sensing Satellites, Image Interpretation, Digital Image processing and Pattern Recognition, GIS theory/practicals, RS Applications and short hands-on project.
3. *“Rice Fish Integrated Farming for High Altitude Wet Rice Lands”* from 11<sup>th</sup> to 31<sup>st</sup>, January 2010, Department of Zoology, Rajiv Gandhi University, Rono-Hills, Arunachal Pradesh, Dept. of Science and Technology (Govt. of India), New Delhi. Water and soil analysis of high altitude wet rice lands. Isolation, Culture, and Identification of Algal communities from high altitude wetland paddy cum pisciculture lands. Estimation of biomass and productivity of phytoplankton and periphyton from the high-altitude wetland rice lands.
4. *“Three Days Short Term Training Course on Application of Computer in Biology Teaching and Research”* from 26<sup>th</sup> to 29<sup>th</sup> February 2009, Department of Forestry, NERIST, Nirjuli, Arunachal Pradesh, Dept. of Biotechnology (Govt. of India), New Delhi. Database management (RDBMS and ORACLE), Internet and biological and ecological data utilization, data analyses using SPSS and MINITAB, web designing and management, multi operating system maintenance.
5. *“Two Days Workshop cum Five Days Training Programme on Recent Advances in Microbial Biotechnology and Molecular Biology”* from 6<sup>th</sup> to 10<sup>th</sup> October 2008, Department of Forestry, NERIST, Nirjuli, Arunachal Pradesh, North Eastern Council (NEC), Shillong, Meghalaya and AICTE-ISTE, New Delhi. Isolation, purification, and quantification of DNA from microbes and higher plants and used different molecular techniques and equipments.
6. *“Training Program on Water Quality Testing”* from 26<sup>th</sup> October to 29<sup>th</sup> November 2007, Department of Forestry, NERIST, Nirjuli, Arunachal Pradesh, and Public Health Engineering Department, Govt. of Arunachal Pradesh, Itanagar. Water and soil analysis of high altitude wet rice lands. Isolation, Culture, and Identification of Algal communities from high altitude wetland paddy cum pisciculture lands. Estimation of biomass and productivity of phytoplankton and periphyton from the high-altitude wetland rice lands.

## ABSTRACTS AND CONFERENCES

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- 2012 A. Arunachalam, K. Arunachalam, **D. Balasubramanian** and Jayashree Dutta *Cultural Landscape Approach to Mitigate Environmental Change Impact on Human Security – A Case Study from Northeast India*. 3<sup>rd</sup> Global Environmental Change and Human Security, NRCS, Morocco; GIZ, Germany; NCCSD, India, 22-24 November, 2012, Marrakech, Morocco.
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- 2011 Jayashree Dutta, **D. Balasubramanian** and Omeng Muang. 2011. *Surface Soil Carbon Stock in Community Managed Forests in Apatani Mega-Cultural Landscape, Arunachal Pradesh*. Indian Forest Congress 2011, Indian Council of Forestry and Education, 22<sup>nd</sup> – 25<sup>th</sup> November 2011, NASC Complex, New Delhi.
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- 2004 K. Lingakumar and **D. Balasubramanian**. *Studies on Morphological, Biochemical and Photosynthetic activity of Gossypium hirsutum L. Var. SVPR-2 at different ages*. National seminar on Rural Biotechnology for Sustainable Development, 19-20 February 2004, Department of Biology, The Gandhigram Rural Institute, Gandhigram, Dindigul District, Chinnalapatti, Tamil Nadu, India.
- 2003 **D. Balasubramanian** and K. Lingakumar. *Characterization of Anatomical and Physiological adaptations in Cassytha filiformis L. an advanced Obligate Hemiparasite on Morinda tinctoria Roxb*. National seminar on

Recent Trends in Plant biotechnology, 23-24 March, Department of Plant Science, Bharathidhasan University, Thiruchirapalli, Tamil Nadu.

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### **MONOGRAPH AND TEACHING MATERIALS (AS EDITOR/ASSOCIATE EDITOR)**

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2. A. Arunachalam, **D. Balasubramanian**, 2007. *Training Manual on Water Quality Testing*, Department of Forestry, North Eastern Regional Institute of Science and Technology, pp. >500.

### **POPULAR ARTICLES**

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3. D. Balasubramanian and Arunachalam, A., 2009. Water Hyacinth Can this weed be useful? *Arunachal Front*, Dated: 24/01/2009.

### **PROFESSIONAL MEMBERSHIPS**

- Executive Council Member, 2021-2023, Society for Science of Climate Change and Sustainable Environment, New Delhi, India.
- Life member, Society for Science of Climate Change and Sustainable Environment, New Delhi, India.
- Life member, National Environmental Science Academy (NESA), New Delhi, India.
- Individual member, South Asian Network for Development and Environmental Economics, Kathmandu, Nepal.

### **PROFESSIONAL ACTIVITIES**

STUDENT Co-MENTOR - North Eastern Regional Institute of Science and Technology - 2005-2011

- Samom Khelen Singh & Kahili Sema (B.Sc Forestry),
- David John Sha & Evansara Shullai (B.Sc Forestry),
- Savinuo Kikhi (B.Sc Forestry), Paushali Roy (M.Sc Forestry)

STUDENT SECRETARY - Botany Association (2001-2002),  
Department of Botany, Ayya Nadar Janaki Ammal College,  
Sivakasi, Tamil Nadu, India.

ASSOCIATE EDITOR - Journal of Biosciences Research (e-Journal, ISSN No. 0976-7222)

REVIEW EDITOR - Frontiers in Soil Science (Soil Biogeochemistry & Nutrient Cycling)

PEER REVIEWER - Agroforestry System, Journal of Plant Nutrition and Soil Science, Ecological Engineering, Journal of Mountain Science, Journal of Environmental Planning and Management

### **COMPUTER SKILLS**

MS-WINDOWS, can handle multiple OS, Working knowledge in different Statistical Software (STATISTICA 6.0, SPSS 10.0 and ORIGN 7.0), Working experience in Geospatial tools like ArcGIS 10, ERDAS IMAGINE 10.0 and ENVI 4.5, Working knowledge in modelling softwares like CENTURY 4.0, DNDC-Wetland, Roth-C and MaxEnt.

### **INSTRUMENT SKILLS**

Kjeldahl Nitrogen Analyzer, Automated Soil carbon Emission analyser, Gas Chromatography, UV - VIS Spectrophotometer, Flame photometer, Fibra Plus and SOCs Plus Solvent Extraction system (Version 0.1), GPS (Geographical Position System), Electrophoresis, Real time PCR etc.

## **ANALYTICAL SKILLS**

Analysis of Soil, Water,  $^{13}\text{C}$  and  $^{15}\text{N}$  natural abundance, Sediments, Trace Gas ( $\text{CO}_2$ ,  $\text{CH}_4$ , &  $\text{N}_2\text{O}$ ) emission, Scanning Electron Microscope (SEM), Microbial Population Estimation, Microbial Biomass Nutrients and Vegetation (Aquatic and terrestrial) analysis. DNA isolation and quantification of soil microbial communities.

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