CURRICULUM VITAE

PERSONAL:

Name: Gamini Seneviratne
Address: National Institute of Fundamental Studies (NIFS),
Hantana Road, Kandy, Sri Lanka.
Tel. No. 94-81-2232002
Fax no. 94-81-2232131
E-mail: gaminis@ifs.ac.lk
Employment: Senior Research Professor
Nationality: Sri Lankan
Date of Birth: 11 May 1962
Sex: Male
Civil status: Married

EDUCATION:

1986-1993: **University of Peradeniya, Sri Lanka.** Department of Botany. Doctor of Philosophy (Ph. D.) in Botany, November 1993.
Thesis title: Optimization the productivity of sustainable traditional rice farming in the dry zone of Sri Lanka.

1981-1984: **University of Peradeniya,** Faculty of Science. Bachelor of Science, (B. Sc.) December 1984. Subjects: Botany, Chemistry and Zoology.

EXPERIENCE:

December 2015 - To date **Senior Research Professor**
National Institute of Fundamental Studies, Hantana Road, Kandy, Sri Lanka.
Current research interests are to extend microbial biofilm biotechnology to other crops in agriculture and plantations as biofertilizers, and also to biochemicals production for various applications.

May 2009-December 2015 **Research Professor**
National Institute of Fundamental Studies, Hantana Road, Kandy, Sri Lanka.
Research interests are N_2O emissions and soil carbon sequestration in tropical ecosystems, and development of biofilms for plant growth improvement and, medical and environmental applications. Supervised and guided undergraduate and postgraduate students working in research projects on Biological Nitrogen Fixation and soil carbon sequestration in ecosystems.

January 2001 -May 2009 **Senior Research Fellow**
Conducted research on mitigation of N_2O emissions in tropical ecosystems and its implications in the global N_2O budgets, soil carbon and nutrient dynamics as predicted by artificial neural networks, soil carbon sequestration, and rhizobial biofilms and their importance in plant-microbe interactions. Over ten years of post-doctoral research experiences. Supervised and guided undergraduate and postgraduate students working in research projects on Biological Nitrogen Fixation and soil carbon and nutrient dynamics in ecosystems.

January 1993-2001 **Research Fellow**
Supervised and guided local as well as foreign undergraduate and postgraduate students working in research projects on Biological Nitrogen Fixation and soil fertility. Coordinated a Belgian-Sri Lankan project on Biological Nitrogen Fixation.

Participated in several seminars/workshops organized by joint FAO/IAEA division on nuclear related methods in soil/plant aspects on sustainable agriculture. Presented a paper at the Open Science Conference of the IGBP, held in July 2001 in Amsterdam. Conducted studies on greenhouse gas emissions from agroecosystems in a post-doctoral fellowship in Belgium.

1991-1992: **Research Assistant/Assistant Lecturer**
Department of Botany, University of Peradeniya, Sri Lanka.
Developed and conducted a course on Biometry/Statistics.

1985-1990: **Postgraduate Research Assistant**
Trained on ^{15}N isotopic techniques under field conditions and methods used in soil/plant analyses. Conducted designed field experiments under control conditions as well as on-farm trials in farmers' fields, on fallow vegetational succession, nitrogen cycling, soil organic matter and phosphorus dynamics in different rice farming systems. Assessed N_2 fixation and N cycling by legume green manure (*Sesbania*species) in the conservation rice farming system using ^{15}N methods. This was funded by SAREC, Sweden.

1985: **Research Assistant**
Field experimentation with *Azolla* on N_2 fixation and N transfer to rice using ^{15}N isotopic techniques. This was coordinated and funded by joint FAO/IAEA division.

PROFESSIONAL ACTIVITIES:
Fellow, National Academy of Sciences of Sri Lanka
Former Editor (2009-2019), Agriculture, Ecosystems & Environment (Elsevier; SCI journal with a high Impact factor, first in the category "Agriculture multidisciplinary" in some years).
Former Editorial Board member, Ceylon Journal of Science (Biological Sciences), University of Peradeniya, Sri Lanka.
Member, Board of Study of Plant Sciences, Post Graduate Institute of Science, University of Peradeniya, Sri Lanka.
Member, Soil Science Society of America/American Society of Agronomy.
Member, American Society for Microbiology.
Life Member, Sri Lanka Association for the Advancement of Science (SLAAS).
Member, Institute of Biology, Sri Lanka.

REVIEWER (JOURNALS & GRANTS): Soil Biology & Biochemistry; Agriculture, Ecosystems & Environment; Hydrobiologia; Ecological Research; Soil Science Society of America Journal; Agronomy Journal; Journal of Environmental Quality (JEQ); Australian Journal of Agricultural Research; Nature (London) – Open reviewer; European Journal of Soil Biology; Bioresource Technology. Antonie van Leeuwenhoek International Journal of General and Molecular Microbiology; Agroforestry Systems. Local journals [Journal of the National Science Foundation of Sri Lanka; Journal of Soil Science Society of Sri Lanka; Annals of the Sri Lanka Department of Agriculture (ASDA)]. Three major local granting bodies (National Science Foundation (NSF); National Research Council (NRC); Council for Agricultural Research Policy (CARP)].

GRANTS AND PATENTS: Major grants received: 1991-1998- Biological nitrogen fixation research in Sri Lanka, funded by the Belgian Administration for Development Cooperation (Rs. 200 million). 2006-2008- Development of an improved rice production system using present and past cultural practices, funded by NSF (Sri Lanka) (Rs. 1.4 million). 2008-2012- Soil carbon sequestration and greenhouse gas emissions from paddy and forest ecosystems in Sri Lanka, funded by NSF (Sri Lanka) (Rs. 0.63 million). 2011-2014- Application of Biofilm biotechnology for novel biofertilizer development, funded by NRC (Sri Lanka) (Rs. 6.7 million). 2011-2014-

Effective use of microbial biofertilisers for an improved economy and environment in Sri Lanka, funded by AusAID (Australia) (AUD 155,000). 2018-2019- Amelioration and restoration of soil fertility through the application of Biofertilizers, funded by the Ministry of Science, Technology & Research (Sri Lanka) (Rs. 30 million). Patent title: Biofilmed biofertilizers for the improvement of soil fertility and crop production. Sri Lanka patent number 15958 (2013).

AWARDS & CREDENTIALS:

1) Presidential Research Awards in 1999, 2000 and 2001-2006. First in the country in this award scheme in 2000.**Google Scholar h-index = 24**.
2) Listed as a top researcher in Sri Lanka by the University Grant Commission (UGC).
3) According to the data of a report of the National Research Council (NRC), Sri Lanka, 2nd most productive scientist in the country in 2002 and 2003. Further, 5th most productive scientist out of about 1,800 scientists listed in the report for the period 1991-2006.
4) Listed as one of the most productive scientists in Sri Lanka in the Third World Academy of Sciences, Italy.
5) Short-term Visiting Collaborative Research Fellow at the University of Sydney, Australia (April-June 2007). Only successful applicant from the Asian region in this fellowship in the year.
6) Visiting Professor of the University of Sydney, Australia from January-May 2009, funded by AusAID, Canberra.

PUBLICATIONS:

1) Marasinghe, S.S.K., Marikkar, J.N., Yalegama, C., Wimalasiri, S., Seneviratne, G., Weerasooriya, R. and Liyanage, R. (2019). Comparison of inter-varietal differences in chemical composition and nutritional properties of coconut testa flour. Journal of the National Science Foundation of Sri Lanka 47, 351 - 358.
2) Perera, M., Wijayarathna, D., Wijesundera, S., Chinthaka, M., Seneviratne, G. and Jayasena, S. (2019). Biofilm mediated synergistic degradation of hexadecane by a naturally formed community comprising *Aspergillusflavus* complex and *Bacillus cereus* group. BMC Microbiology 19, 84. https://doi.org/10.1186/s12866-019-1460-4
3) Singhalage, I.D., Seneviratne, G., Madawala, H.M.S.P. and Wijepala, P.C. (2019). Profitability of strawberry (*Fragariaananassa*) production with biofilmed biofertilizer application. Scientia Horticulturae 243, 411-413.
4) Singhalage, I.D., Seneviratne, G., and Madawala, H.M.S.P. (2019). Cultivated Strawberry (*Fragaria x ananassa*) and wild Strawberry (*Duchesneaindica*) rhizosphere associated microbes as inoculants to promote early vegetative growth of Strawberry. International Journal of Science and Research 8,862-867.
5) Singhalage, I. D., Seneviratne, G., Madawala, H. M. S. P., Manawasinghe, I. S. (2018). Characterization of structural properties of fungal-bacterial biofilms by Fourier Transform Infrared Spectroscopy. Ceylon Journal of Science47, 77-83.
6) Kulasooriya, S.A., Seneviratne, G., Ekanayake, E.M.H.G.S. (2017) Soil microbial diversity and its utilization in agriculture in Sri Lanka. In: J.K. Patra et al. (eds.), Microbial Biotechnology, Springer Nature, Singapore, pp. 203-244.
7) Seneviratne, G., Wijepala, P.C., Chandrasiri, K.P.N.K. (2017) Developed biofilm-based microbial ameliorators for remediating degraded agroecosystems and the environment. In: I. Ahmad, F. M. Husain (eds.), Biofilms in Plant and Soil Health, John Wiley & Sons Ltd., Chichester, United Kingdom, pp. 327-335.
8) Perera, T.A., Tirimanne, T.L.S., Seneviratne, G., Kulasooriya, S.A. (2017) *Azorhizobiumcaulinodans* ORS 571–*Aspergillus* spp. biofilm in the presence of flavonoid naringenin: An extremely effective association for rice root colonization with a definite future as a nitrogen biofertilizer. Indian Journal of Biochemistry and Biophysics 54, 214-222.
9) Herath, L., Seneviratne, G., Jayasinghe, J.A.W.W., Senanayake, D.M.N. (2017) Microbial biofilms and mitigation of loss of agro-biodiversity in degraded soils. Journal of National Science Foundation of Sri Lanka 45, 329 – 335.
10) Seneviratne, G.,Wijepala, P.C. (2017) Biofilm biofertilizers for incorporating biodiversity benefits and reducing environmentally harmful subsidies in agriculture.The Sri Lanka Forester 38, 59 – 63.

11) Singh, J.S., Seneviratne, G. (2017) Agro-Environmental Sustainability, Vol. 1: Managing Crop Health. Springer Nature, Switzerland. 316 pp.
12) Singh, J.S., Seneviratne, G. (2017) Agro-Environmental Sustainability, Vol. 2: Managing Environmental Pollution. Springer Nature, Switzerland. 257 pp.
13) Seneviratne, G., Weerasekara, M.L.M.A.W., Kumaresan, D., Zavahir, J.S. (2017) Microbial signaling in plant-microbe interactions and its role on sustainability of agroecosystems. In: J. Singh, G. Seneviratne (eds), Agro-Environmental Sustainability. Vol. 1: Managing Crop Health. Springer Nature, Switzerland, pp. 1-17.
14) Seneviratne, M., Seneviratne, G., Madawala, H., Vithanage, M. (2017) Role of rhizospheric microbes in heavy metal uptake by plants. In: J. Singh, G. Seneviratne(eds), Agro-Environmental Sustainability,Vol. 2: Managing Environmental Pollution. Springer Nature, Switzerland, pp. 147-163.
15) Buddhika, U.V.A., Seneviratne, G., Ekanayake, E.M.H.G.S., Senanayake, D.M.N., Igalavithane, A.D., Weeraratne, N., Jayasekara, A.P.D.A., Weerakoon, W.L., Indrajith, A., Gunaratne, H.M.A.C., Kumara, R.K.G.K., De Silva, M.S.D.L., Kennedy, I.R. (2016) Biofilmedbiofertilizers application in agroecosystems. In: V.K. Gupta, D. Thangdurai, G. D. Sharma (eds.), Microbial Bioresources, CAB International, Wallingford, United Kingdom, pp. 96-106.
16) Hettiarachchi, R.P., Dharmakeerthi, R.S., Seneviratne, G., Jayakody, A.N., De Silva, K.E.,Gunathilake, T., Thewarapperuma, A. (2016) Determination of desirable properties of bacteria, fungi and their biofilm associated with rubber rhizosphere. Tropical Agricultural Research 27, 399– 413.
17) Seneviratne, M., Gunaratne, S., Bandara, T., Weerasundara, L., Rajakaruna, N., Seneviratne, G., Vithanage, M. (2016) Plant growth promotion by Bradyrhizobiumjaponicum under heavy metal stress. South African Journal of Botany 105, 19–24.
18) Henagamage, A.P., Seneviratne, G., Abayasekera, C., Kodikara, K.M.S. (2016) Screening for crop response to diazotrophic bacteria isolated from Potato rhizosphere. Ceylon Journal of Science 45, 55-63.
19) Kuruppuarachchi, K. A. J. M., Seneviratne, G., Madurapperuma, B.D. (2016) Carbon sequestration in tropical forest stands: its control by plant, soil and climatic factors. Open Journal of Forestry 6, 59-71.
20) Seneviratne, M., Madawala, H.M.S.P., Seneviratne, G. Vithanage, M. (2016) Cellular level defensive mechanisms in plants against toxic metals. In: J. A. Daniels (ed.), Advances in Environmental Research. Volume 46. NOVA publishers, USA, pp. 41-55.
21) Bandara, T.,Herath, I.,Kumarathilaka, P., Seneviratne, M., Seneviratne, G., Rajakaruna, N, Vithanage, M., Ok, Y. (2015) Role of woody biochar and fungal-bacterial co-inoculation on enzyme activity and metal immobilization in serpentine soil. Journal of Soil and Sediments 15: 1-9.
22) Seneviratne, M., Vithanage, M., Madawala, H.M.S.P., Seneviratne, G. (2015) A novel microbial biofilm for bioremoval of Ni from aqueous media. Bioremediation Journal 19: 239-248.
23) Seneviratne, G. (2015) Signal transduction in edaphic ecosystems governs sustainability. Agriculture, Ecosystems and Environment 210: 47–49.
24) Seneviratne, M., Seneviratne, G., Madawala, H.M.S.P., Iqbal, M.C.M., Rajakaruna, N., Bandara, T., Vithanage, M. (2015) A preliminary study of the role of bacterial–fungal co-inoculation on heavy metal phytotoxicity in serpentine soil. Australian Journal of Botany 63: 261–268.
25) Buddhika, U. V. A. and Seneviratne, G. (2015) Biofilmedbiofertilizers: a recent trend in biofertilizer application. In: Sinha, S., Pant, K.K., Bajpai, S. and Govil, J.N. (eds.) *Fertilizer Technology II*: *Biofertilizers.* Studium Press LLC, Houston, Texas, USA, pp. 69-80.
26) Herath, H.M.L.I., Menikdiwela, K.R., Igalavithana, A.D., Seneviratne, G. (2015) Developed fungal-bacterial biofilms having nitrogen fixers: universal biofertilizers for legumes and non-Legumes. In: F. J. de Bruijn (Ed.), Biological Nitrogen Fixation, Volume 2, First Edition. John Wiley & Sons, Inc., Hoboken, NJ, USA, pp. 1041-1046.
27) Kuruppuarachchi, K. A. J. M., Seneviratne, G. (2014 &2015) Microbial biofilms developed from isolates of native tree species for reforestation: A pilot study at nursery stage. The Sri Lanka Forester 36&37, 49-58.
28) Herath, H.M.L.I., Rajapaksha, A.U., Vithanage, M. and Seneviratne, G. (2014) Developed fungal-bacterial biofilms as a novel tool for bioremoval of hexavelant chromium from wastewater. Chemistry and Ecology 30: 418-427.

29) De Silva, M.S.D.L., Jayasekera, A.P.D.A., Seneviratne, G., Abeysekera, U.P., Prematunge, E.W.T.P. and Wijesekera, S.N. (2014) Soil fertility improvement through biofilmedbiofertilizers: potential for field applications in tea cultivation. Sri Lanka Journal of Tea Science 79: 46-61.
30) Hettiarachchi, R.P., Dharmakeerthi, R.S., Seneviratne, G., Jayakody, A.N., de Silva, E., Gunathilake, T., Thewarapperuma, A., Maheepala, C.K.(2014) Availability and leaching of nutrients after biofilm biofertilizerapplications into a Red Yellow Podsolic soil. Journal of Rubber Research Institute of Sri Lanka 94: 43-53.
31) Buddhika, U.V.A.; Seneviratne, G.; Abayasekara, C.L. (2014) Fungal-bacterial biofilms differ from bacterial monocultures in seed germination and Indole acetic acid production. Int. J. Sci. Res. Pub. 4: 1-5.
32) Hettiarachchi, R.P., Dharmakeerthi, R.S., Jayakody, A.N., Seneviratne, G., de Silva, E., Gunathilake, T., Thewarapperuma, A. (2014) Effectiveness of fungal bacterial interactions as biofilmedbiofertilizers on enhancement of root growth of *Hevea*seedlings. J. Environ. Prof. Sri Lanka 3: 25-40.
33) Seneviratne G., Weeraratne N., Buddhika U.V.A. (2013) Diversity of plant root associated microbes: its regulation by introduced biofilms. In: Plant Microbe Symbiosis-Fundamentals and Advances. N.K. Arora (ed.), Springer, India, pp. 351-372. Invited.
34) Herath, H.M.L.I., Senanayeke, D.M.N., Seneviratne, G., Bandara, DC. (2013). Variation of biochemical expressions of developed fungal-bacterial biofilms over their monocultures and its effect on plant growth. Tropical Agricultural Research24: 186 – 192.
35) Kuruppuarachchi, K. A. J. M., Seneviratne, G., Madurapperuma, B.D. (2013) Drought induced fine root growth and canopy green-up of tropical dry zone vegetations in Sri Lanka. Journal of Tropical Forestry and Environment 3: 17-23.
36) Kuruppuarachchi, K. A. J. M., Seneviratne, G. (2013) Predicting aboveground biomass increment of tropical forests from litter-fall. Ceylon Journal of Science (Biological Science) 42(1): 35-40.
37) Buddhika U.V.A., Athauda A.R.W.P.K., Kulasooriya S.A., Seneviratne G., Abayasekara C.L. (2013) Emergence of diverse microbes on application of biofilmedbiofertilizers to a maize growing soil. Ceylon Journal of Science (Biological Science) 42 (2): 39-47.
38) Ratnayake, R.R., Seneviratne, G., Kulasooriya, S.A. (2013) Effect of soil carbohydrates on nutrient availability in natural forests and cultivated lands in Sri Lanka. Eurasian Soil Science 46: 579–586.
39) Seneviratne, G. and Kulasooriya, S.A. (2013). Reinstating soil microbial diversity in agroecosystems: The need of the hour for sustainability and health. Agriculture, Ecosystems & Environment 164: 181-182.
40) Seneviratne, G., Igalavithane, A.D., Sandamali, H.A.J., Henakaarachchi, M.P.N.K. and Jayakody, A.N. (2012). Fungal inoculation with clay improves carbon stabilization of tropical forest floor litter. Environmental Research Journal 6: 287-293.
41) Seneviratne, G. (2012) Are we wrong in conventional approach of biocontrol? Current Science 103: 1387-1388.
42) Seneviratne, G.,Jayasekara, A. P. D. A., De Silva, M.S.D.L.andAbeysekera, U. P. (2011) Developed microbial biofilms can restore deterioratedconventional agricultural soils. Soil Biology and Biochemistry 43: 1059-1062.
43) Ratnayake, R. R., Seneviratne, G. and Kulasooriya, S. A.(2011) Effects of land use and management practices on quantitative changes of soil carbohydrates. Journal of National Science Foundation of Sri Lanka 39: 345-353.
44) Ratnayake, R. R., Seneviratne, G. and Kulasooriya, S. A.(2011) The effect of cultivation on organic carbon content in the clay mineral fraction of soils. International Journal of Soil Science 6: 217-223.
45) Seneviratne, G, Jayakody,K. P. K., Weerasekara,M. L. M. A. W., Someya, T. and Ryuda, N. (2011) Microbial biofertilizer application versus compost use in agriculture: soil health implications. In.Miransari, M. (ed.) Soil Microbes and Environmental Health. Nova Science Publishers Inc., USA, pp. 81-117. Invited.
46) Seneviratne, G., Weerasekara, M. L. M. A. W. and Jayakody, K. P. K. (2011)Soil tillage effects on N_2 fixing bacteriaand their communities. In. Miransari, M. (ed.) Soil Tillage and Microbial Activities. Research Signpost, India, pp. 1-18. Invited.
47) Weerasinghe. S. M., Chandrasekara, C., Seneviratne, G., Gunatilleke. C. V. S. andGunatilleke, I. A. U. N. (2010) Growth variations of edaphic specialist species in a reciprocal potexperiment in Sri Lanka. Journal of National Science Foundation of Sri Lanka38: 171-179.

48) Seneviratne, G., Weerasekara M. L. M. A. W. and Zavahir, J. S. (2010) Microbial Biofilms: How Effective in *Rhizobium*-Legume Symbiosis? In. Khan, M. S., Zaidi, A. and Musarrat, J. (eds.) Microbes for Legume Improvement. Springer-Verlag/Wien, pp. 123-136. Invited.
49) Seneviratne, G., Weerasekara M. L. M. A. W., Seneviratne, K.A.C.N., Zavahir, J. S., Kecskés, M.L. and Kennedy, I.R. (2010) Importance of biofilm formation in plant growth promoting rhizobacterial action. In. Maheshwari, D. K. (ed.)Plant Growth and Health Promoting Bacteria,Microbiology Monographs 18 (Springer series), Springer-Verlag Berlin Heidelberg, pp. 81-96. Invited.
50) Seneviratne, G., Thilakaratne, R.M.M.S., Jayasekara, A.P.D.A., Seneviratne, K. A. C. N., Padmathilake, K. R. E. and De Silva, M.S.D.L. (2009) Developing beneficial microbial biofilms on roots of non-legumes: A novel biofertilizing technique. In. Khan, M. S., Zaidi, A. and Musarrat, J. (eds.) Microbial Strategies for Crop Improvement. Springer-Verlag, Germany, pp. 51-62. Invited.
51) Seneviratne, G. (2009) Collapse of beneficial microbial communities and deterioration of soilhealth: a cause for reduced crop productivity. Current Science 96: 633.
52) Seneviratne, G. (2009) Effect of forest drought on global warming is enigmatic. Current Science 97: 9.
53) Seneviratne, G.,Peyvast G. A., Olfati, J. A. andKariminia, A.(2009) Rhizobia as biofertilizers for mushroom cultivation. Current Science 96: 1559.
54) Seneviratne, G.,Henakaarchchi, M.P.N.K., Weerasekara, M.L.M.A.W. and Nandasena, K. A. (2009) Soil organic carbon and nitrogen pools as influenced bypolyphenols in different particle size fractions under tropicalconditions. Journal of National Science Foundation of Sri Lanka37: 67-70.
55) Ambagahaduwa, I. M., Prasad, N.,Gunatilleke, I.A.U.N.,Seneviratne, G. and Gunatilleke, C. V. S. (2009) Estimation of above ground biomass of a *Pinuscaribaea*Moreletstand in lower Hantana. Journal of National Science Foundation of Sri Lanka37:195-201.
56) Ratnayake, R. R., Seneviratne, G. andKulasooriya, S. A. (2008) Characterization of clay bound organicmatter using activation energycalculated by weight loss on ignitionmethod. Current Science 95: 763-766.
57) Seneviratne, G. (2008) Biological nitrogen fixation: Potential biotechnological applications beyond biofertilizers. Current Science 95: 7.
58) Seneviratne, G. (2008) Two-thirds law of nitrogen mineralization under undisturbed soil conditions: a new theory. Pedosphere18:149-153.
59) Seneviratne, G., Zavahir, J. S., Bandara, W. M. M. S. and Weerasekara, M. L. M. A. W. (2008) Fungal-bacterial biofilms: their development for novelbiotechnological applications. World Journal of Microbiology and Biotechnology 24: 739-743.
60) Siddique, I., Gutjahr, C., Seneviratne, G., Breckling, B., Ranwala, S. W. and Alexander, I. J. (2007) Changes in soil chemistry associated with the establishment of forest gardens on eroded, acidified grassland soils in Sri Lanka. Biology and Fertility of Soils 44: 163-170.
61) Zavahir, J. S. and Seneviratne, G. (2007) Potential of developed microbial biofilms in generating novel bioactive compounds. Research Journal of Microbiology 2: 397-401.
62) Ratnayake, R. R., Seneviratne, G. and Kulasooriya, S. A. (2007) A modified method of weight loss on ignition to evaluate soil organic matter fractions. International Journal of Soil Science 2: 69-73.
63) Bandara, W. M. M. S., Seneviratne, G. and Kulasooriya, S. A. (2006) Interactions among endophytic bacteria and fungi: effects and potentials. Journal of Biosciences 31: 645-650.
64) Seneviratne, G. and Indrasena, I. K. (2006) Nitrogen fixation in lichens is important for improved rock weathering. Journal of Biosciences 31: 639-643.
65) Jayasinghearachchi, H. S. and Seneviratne, G. (2006) Fungal solubilization of rock phosphate is enhanced by forming fungal-rhizobial biofilms. Soil Biology and Biochemistry 38: 405-408.
66) Jayasinghearachchi, H. S., Seneviratne, G. and Weerasinghe, H. M. S. P. M. (2006) Tannin interactions with legume-rhizobial N2 fixing symbiosis. International Journal of Agricultural Research 1: 1-7.
67) Jayasinghearachchi, H. S. and Seneviratne, G. (2006) A mushroom-fungus helps improve endophytic colonization of tomato by Pseudomonas fluorescens through biofilm formation. Research Journal of Microbiology 1: 83-89.
68) Seneviratne, G., Tennakoon, N. S., Weerasekara, M. L. M. A. W. and Nandasena, K. A. (2006) Polyethylene biodegradation by a developed Penicillium-Bacillus biofilm. Current Science 90: 20-21.

69) Seneviratne, G., Kuruppuarachchi, K. A. J. M., Somaratne, S. and Seneviratne, K. A. C. N. (2006) Nutrient cycling and safety-net mechanism in the tropical homegardens. International Journal of Agricultural Research 1: 169-182.
70) Jayasinghearachchi, H. S., Seneviratne, G. and Weerasinghe, H. M. S. P. M. (2006) A polyacrylamide gel electrophoretic approach of fingerprinting soil polyphenols. International Journal of Soil Sciences 1: 53-57.
71) Chandrasekara, C. M. C. P., Weerasinghe, H. M. S. P. M., Gunatilleke, I. A. U. N. and Seneviratne, G. (2005) Spatial distribution of arbuscularmycorrhizas along an elevation and edaphic gradient in the forest dynamics plot at Sinharaja, Sri Lanka. Ceylon Journal of Science (Biological Science) 34: 47-64.
72) Somaratne, S., Seneviratne, G. and Coomaraswamy, U. (2005) Prediction of soil organic carbon across different land-use patterns: A neural network approach. Soil Science Society of America Journal 69: 1580-1589.
73) Seneviratne, G. and Jayasinghearachchi, H. S. (2005) A rhizobial biofilm with nitrogenase activity alters nutrient availability in a soil. Soil Biology and Biochemistry 37: 1975-1978.
74) Tennakoon, M. M. D., Gunatilleke, I. A. U. N., Hafeel, K. M., Seneviratne, G., Gunatilleke, C. V. S. and Ashton, P. M. S. (2005) Ectomycorrhizal colonization and seedling growth of Shorea (Dipterocarpaceae) species in simulated shadeenvironments of a Sri Lankan rain forest. Forest Ecology and Management 208: 399–405.
75) Jayasinghearachchi, H. S. and Seneviratne, G. (2004) Can mushrooms fix atmospheric nitrogen? Journal of Biosciences 29: 293-296.
76) Jayasinghearachchi, H. S. and Seneviratne, G. (2004) A bradyrhizobial-Penicillium spp. biofilm with nitrogenase activity improves N_2 fixing symbiosis of soybean. Biology and Fertility of Soils 40: 432-434.
77) Seneviratne, G. and Nanayakkara, A. (2004) Isotope/element fractionation during surface adsorption. American Journal of Physics 72: 73-75.
78) Seneviratne, G. (2003) Development of eco-friendly, beneficial microbial biofilms. Current Science 85: 1395-1396.
79) Seneviratne, G. (2003) Global warming and terrestrial carbon sequestration. Journal of Biosciences 28: 653-655.
80) Seneviratne, G. and Somapala, K.L.A. (2003) Litter controls on soil nitrous oxide emission. Current Science 84: 498-499.
81) Seneviratne, G. and Jayasinghearachchi, H.S. (2003) Mycelial colonization by bradyrhizobia and azorhizobia. Journal of Biosciences 28: 243-247.
82) Seneviratne, G. and Jayasinghearachchi, H.S. (2003) Phenolic acids: Possible agents of modifying N2-fixing symbiosis through rhizobial alteration? Plant and Soil 252: 385-395.
83) Seneviratne, G. (2002) Planting trees for C sequestration: A reality? Current Science 82: 777.
84) Seneviratne, G. (2002). Litter controls on carbon sequestration. Current Science 82: 130-131.
85) Seneviratne, G. and Ekanayake, E.M.H.G.S. (2001). A simple method of producing green manure Sesbaniarostrata to achieve N synchrony in lowland rice. International Rice Research Notes 26: 34-35.
86) Seneviratne, G. (2001). Mitigating nitrous oxide emission in tropical agriculture: Myths and realities. Current Science 80: 117-118.
87) Seneviratne, G., Van Holm, L.H.J. and Ekanayake, E.M.H.G.S. (2000). Agronomic benefits of rhizobial inoculant use over nitrogen fertilizer application in tropical soybean. Field Crops Research 68: 199-203.
88) Seneviratne, G. (2000). Litter nitrogen release in tropical agroecosystems. Current Science 79: 1054.
89) Seneviratne, G. (2000). Litter quality and nitrogen release in tropicalagriculture: a synthesis. Biology and Fertility of Soils 31: 60-64.
90) Seneviratne, G., Van Holm, L.H.J. and Ekanayake, E.M.H.G.S. (1999). Effect of peat and coir dust-based rhizobial inoculants on the nodulation, plant growth and yield of Soybean (Glycine max [L.] Merill) cv PB 1. Tropical Agricultural Research and Extension 2: 132-134.
91) Seneviratne, G., (1999). A cheap way to control N_2O in agriculture. Ambio 28: 378.
92) Seneviratne, G., Van Holm, L.H.J., Balachandra, L.J.A. and Kulasooriya, S.A., (1999). Differential effects of soil properties on leaf nitrogen release. Biology and Fertility of Soils 28: 238-243.

93) Seneviratne, G., Van Holm, L.H.J. and Kulasooriya, S.A. (1998) Quality of different mulch materials and their decomposition and N release under low moisture regimes. Biology and Fertility of Soils 26: 136-140.
94) Seneviratne, G. and Van Holm, L.H.J. (1998). CO_2, CH_4 and N_2O emissions from a wetted tropical upland soil following surface mulch application. Soil Biology and Biochemistry 30:1619-1622.
95) Seneviratne, G. and Van Holm, L.H.J. (1996). Green manure and rice straw recycling potentials in rice of Sri Lanka: A review. In. Sesbaniarostrata, a potential green manure for lowland rice in Sri Lanka. (L.H.J. Van Holm, ed.). The BNF Project, IFS, Sri Lanka. pp. 1-13.
96) Seneviratne, G., Karunaratne, J., Kulasooriya, S.A. and Rosswall, T., (1994). Theory to predict potentially mineralizable nitrogen in soils. Soil Biology and Biochemistry 26: 1491-1493.
97) Seneviratne, G., Kulasooriya, S.A. and Rosswall, T. (1994). Sustainment of soil fertility in the traditional rice farming, dry zone, Sri Lanka. Soil Biology and Biochemistry 26: 681-688.
98) Seneviratne, G., and Kulasooriya, S.A. (1994). Fate of applied N in the traditional, modern and conservation farming systems of lowland rice in Sri Lanka. International Rice Research Notes 19(1): 18.
99) Kulasooriya, S.A., Seneviratne, G. and Wijesundara, C. (1994). An evaluation of some factors that limit the widespread use of Azolla in rice cultivation. In. Nitrogen Fixation with Non-legumes. (N.A. Hegazi, M. Fayez and M. Monib, eds.). The AmericanUniversity in Cairo Press, Cairo, Egypt. pp 469-474.
100) Seneviratne, G. Kulasooriya, S.A., Gunatillake, C.V.S. and Rosswall, T. (1992). Ecology of a rice fallow vegetation under lowland traditional farming in the dry zone of Sri Lanka. Tropical Ecology 33: 17-28.
101) Seneviratne, G., Kulasooriya, S.A., Weerakoon, W.L. and Rosswall, T. (1992). N_2-fixation in two Sesbania species and its transfer to rice (Oryza sativa L.) as revealed by 15N technology. Biology and Fertility of Soils 14: 37-42.
102) Weerakoon, W.L., Seneviratne, G., De Silva, A.P. and Seneviratne, A.M. (1992). Evaluation of Sesbaniaspeciosa as a green manure for lowland rice in the dry zone of Sri Lanka. Plant and Soil 145: 131-139.
103) Weerakoon, W.L., Seneviratne, G. and Seneviratne, A.M. (1992). Flowering, seed production and germination of Sesbania speciosa used as a green manure for lowland rice. International Rice Research Newsletters 17(6): 21.
104) Kulasooriya, S.A., Seneviratne, G., De Silva, W.S.A.G., Abeysekera, S.W., Wijesundara, C., and De Silva, P. (1988). Isotopic studies on N_2-fixation in Azolla and the availability of its nitrogen to rice. Symbiosis 6:151-166.

CONFERENCE PROCEEDINGS Etc.:

- Seneviratne, G. (2001). ^{15}N enrichment in upper oceanic N_2O reveals the existence of a novel N_2O sink. In Proceedings of the **Global Change Open Science Conference of the IGBP**, Amsterdam, The Netherlands, 10-13 July 2001.

- Seneviratne, G. (2002). Variability in universal deuterium enrichment explained. In Proceedings of the **World Space Congress (sponsored by COSPAR, NASA etc.)**, Houston, Texas, USA, 10-19 October 2002.

- Seneviratne, G. (2003). Growth and Litterfall Trends of Global Tropical Forests. In Proceedings of the **Biotic Interactions in the Tropics: A Special Symposium of the British Ecological Society and The Annual Meeting of the Association for Tropical Biology and Conservation**, University of Aberdeen, Scotland, UK, 7-10 July 2003.

- Participated in the **Soils and Hydrology Workshop at the Smithsonian Tropical Research Institute,**Republic of Panama, 1-8 June 2004.

- Seneviratne, G., Kecskés, M. L. and Kennedy, I. R. (2008)Biofilmedbiofertilisers: Novel inoculants forefficient nutrient use in plants. Kennedy, I.R., Choudhury, A.T.M.A, Kecskés, M.L. and Rose, M.T. (eds) **Efficient nutrient use in rice production in Vietnam achieved using inoculant biofertilisers.** Proceedings of a

project (SMCN/2002/073) workshop held in Hanoi, Vietnam, 12–13 October 2007. ACIAR Proceedings No. 130, 137pp.

- U.V.A. Buddhika, G. Senevirtne, C.L. Abayasekara, (2013) Soil biodiversity loss and its reversal by using developed microbial biofilms in agroecosystems. National Symposium on "Soil Biodiversity" 2013, Biodiversity Secretariat-Ministry of Environment and Renewable Energy, Colombo. 10-11 December 2013.

- S. A. Kulasooriya and G. Seneviratne, (2013) Soil microbial diversity and its use in crop production. National Symposium on "Soil Biodiversity" 2013, Biodiversity Secretariat-Ministry of Environment and Renewable Energy, Colombo. 10-11 December 2013.

- Seneviratne, G. (2013) Role of fungal-bacterial interactions in developed biofilms in sustaining agroecosystems. Jacques Monod Conference on Bacterial-fungal interactions: a federative field for fundamental and applied microbiology. Roscoff (Brittany), France, December 7-11, 2013.

- Seneviratne, G. (2014) Are we wrong in conventional approach of agriculture? Third Summit of Science Academies of South Asia and General Assembly of Association of Academies and Societies of Sciences in Asia, New Delhi, India, 14-17 October 2014.

- Henagamage, A.P., Seneviratne, G.,Abayasekera, C., Kodikara, K.M.S., Wilson, N.L., Kennedy, I.R. (2014) Development of beneficial fungal-bacterial biofilms for plant growth promotion. 17th Australian Nitrogen Fixation Conference, Adelaide, Australia, 29 September-2 October 2014.

- Wilson, N., Seneviratne, G., Kennedy, I.R. (2014) The complexity of favourable factors contributing to the success of biofilmedbiofertilisers in Sri Lanka: AusAID project PSLP 58648 2011-2014. 17th Australian Nitrogen Fixation Conference, Adelaide, Australia, 29 September-2 October 2014.

- Seneviratne, G. and Wijepala, P.C. (2016) Biofilm biofertilizers for incorporating biodiversity benefits and reducing environmentally harmful subsidies in agriculture. Proceedings of the International Research Symposium, Sri Lanka Next, A Blue-Green Era Conference, BMICH, Colombo, 18-19 October 2016.

- Seneviratne, G. (2017) Microbial signaling and sustainability of agroecosystems. International Workshop on Agriculture, Ecosystems and Environment, State Key Laboratory for Conservation and Utilization of Subtropical Agro-Bioresources, College of Forestry, Guangxi University, Nanning, China, 1-2 June 2017 (Keynote speaker).
- Seneviratne, G. (2017) Successful commercialization cases of Biofertilizers in Sri Lanka. National Conference on Biofertilizers and Biopesticides, International Water Management Institute, Battaramulla, 29-30 November 2017.
- Seneviratne, G. (2019). Reinstate microbial networks for sustainability of degraded agroecosystems: a microbial biofilm approach (Invited Speaker), 2nd International Conference on Biofilms (ChinaBiofilms 2019), Guangzhou, China, 10-13 October 2019.

SOME CONTRIBUTIONS TO THE NATIONAL DEVELOPMENT

1) Pioneered in a team in producing a local, beneficial bacterial fertilizer for soybean and green gram in Sri Lanka, for replacing urea. This bacterium was introduced to Sri Lanka. At present, this fertilizer is being sold and used for up to about 10,000 acres in the dry zone. Similar fertilizers based on biofilms have been developed at the NIFS for rice, tea, maize, vegetables etc. in order to partially replace the use of urea and other chemical fertilizers (by up to 50%), and they have now been commercialized(please see, www.biofilm.lk). If we could

cut down the use of urea by about 50% by using those microbial fertilizers, we would be able to save over10,000 million rupees of foreign exchange, annually.

2) Introduced Fungal-bacterial Biofilm Biotechnology to the world. This technology can be used for enhanced efficiency of the conventional microbial biotechnologies, for example, improved solubilization of Eppawala rock phosphate, improved degradation of polythene, drug discovery, biofuel production etc. Microbial formulations for those are being developed at the NIFS at present.

3) Collected an extensive dataset of soil stable carbon in Sri Lanka. This is important for soil carbon banking, which has environmental implications in carbon sequestration and trading.

4) Trained over 100 students for advanced research as well as post graduate degrees. So far, I have produced 4 M. Sc., 3 M. Phil. and 9 Ph. D.

5) Represented Sri Lanka in international research journals and scientific societies.

REFERENCES:

1. Prof. S.A. Kulasooriya,
National Institute of Fundamental Studies,
Hantana Road, Kandy,
Sri Lanka.
E-mail: ananda@kulasooriya.com

2. Prof. Thomas Rosswall,
Formerly, CCAFS Secretariat
Department of Agriculture and Ecology
Faculty of Life Sciences
University of Copenhagen
Rolighedsvej 21
DK-1958 Frederiksberg C
Denmark.
Present email:
thomas.rosswall@gmail.com

3. Prof. Ivan R. Kennedy
Formerly Director,
SUNFix Center for Nitrogen Fixation
Faculty of Agriculture, Food & Natural Resources
University of Sydney,
NSW 2006
Australia
E-mail:
ivan.kennedy@sydney.edu.au