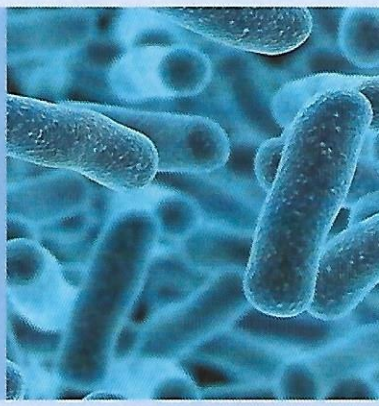
International Academic Symposium on Microbial Stress Tolerance and Response

CONFERENC PROGRAM



October 20-22, 2023
Guangzhou, China

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Dr. Seneviratne had obtained BSc and Ph.D. from University of Peradeniya in 1984 and 1993, respectively. He has been serving as research professor from 2009 to 2015 in National Institute of Fundamental Studies, and then as senior research professor since 2015. At present, he is a Fellow of the National Academy of Sciences of Sri Lanka. He was former Editors to the Agriculture, Ecosystems & Environment (Elsevier), and Ceylon Journal of Science. He introduced beneficial microbial biofilm concept to biofertilizers, being the inventor of Biofilm biofertilizers.

Title: Addressing the microbial stress response in agro- and human body ecosystems: a biofilm approach

Abstract: Microorganisms are sensitive to a range of environmental stressors that can affect their growth and survival, and they have evolved various mechanisms to cope with the stressors. Understanding the impact of these stressors on microorganisms is important in diverse fields, such as microbiology, biotechnology, and environmental science. Microbes in natural environments play a role in nutrient cycling, pollutant degradation and water quality. Knowledge on their stress responses is essential for managing and remediating environmental issues. Microbial stress responses in the environment are also integral to the interactions within the human microbiome as the environmental health directly influences the human health.

In natural ecosystems, microbial stress response may lead to dormant microbial states to bypass the stress factors, thus reducing microbial diversity and abundance. The reduced microbial diversity and abundance under the stress retard internal carbon (biochemicals) and nutrient cycling, while increasing their losses. That in turn leads to deplete ecosystem functioning and sustainability. Moreover, stress response of pathogens may also lead to virulence expression and pathogenicity, among other things. As such, microbial stress response may have negative outcomes leading to ecosystem degradation. Our approach is to produce the biochemicals via *in vitro* biofilm development (biofilms produce a higher diversity of environmentally important biochemicals than planktonic state) and its wider application to degraded ecosystems to break the dormant microbial states for increased microbial diversity, abundance, pathogen control, ecosystem functioning and to revive sustainability.