



Covering Environments—The CEAC Monthly Seminars

COOL MOLECULES from HOT DESERTS – A TALE of SIGNIFICANT FINDINGS

September 30, 2016 @ 4:00pm

Controlled Environment Agriculture Center, 1951 E Roger Rd

Leslie Gunatilaka, PhD

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Professor of the School of Natural Resources & the Environment

The University of Arizona

The University of Arizona is a Research One institution in which many areas of the pursuit of knowledge thrive. We all know about Optical Sciences, Astronomy & Astrophysics, Geology, Management Information Systems, Ecology & Evolutionary Biology, and many more.

Yet, there are other areas of superb excellence and achievements but less known within and outside the UofA--our so-called hidden jewels. One of these is the SW Center for Natural Products Research & Commercialization (NPC) which is a highly interactive unit whose mission it is to grow exotic desert and arid lands plants, to extract and characterize secondary metabolites from them, and to test these compounds for possible efficacy as disease fighting drugs.

Leslie Gunatilaka, the Director of this Center, is known internationally as a superb organic chemist who is focused on purifying, characterizing and synthesizing compounds which are produced by plants and by micro-organisms living symbiotically with them. He has published more than 250 peer-reviewed papers bringing accolades to the UA and AZ across the country and internationally. Gunatilaka has made seminal and highly valued contributions in this area of research including pioneering work on metabolites of desert plant rhizosphere-associated fungi and fungi found inside lichens. This work has led to the discovery that symbiotic fungi confer on their plant partners heat-tolerance through such molecules as Monocillin I, and more recently he has made major contributions to the discovery that withanolides, plant compounds known to be effective against various forms of cancer, can be produced in large quantities.

Consistent with the NPC being housed in the College of Agriculture & Life Sciences, Gunatilaka and his team have also applied novel agricultural techniques, like those pioneered and used at CEAC, including controlled environments, hydroponics and aeroponics to the cultivation of medicinal plants. He and his team discovered that many of these plants grow more vigorously, faster, and even produce novel compounds when their growth conditions are defined and controlled.

In today's presentation, Gunatilaka will focus on NPC-discovered findings, made during the past two decades, which document how desert plants and their associated microorganisms express natural product-based molecules with potential applications in agriculture and medicine.