Πρόσκληση

Τρίτη
28 Μαρτίου 2017
ώρα 16:00

Πολυχώρος «Κτίσης»,
Τεχνολογικό Πανεπιστήμιο Κύπρου,
Πλατεία Ηρώων,
Λεμεσός

Το Τμήμα Τεχνολογίας και Επιστήμης Περιβάλλοντος του Τεχνολογικού Πανεπιστημίου Κύπρου σας προσκαλεί σε διάλεξη με θέμα:

"Limits to microbial life at high salt concentrations: why aren't all types of metabolism found at the highest salinities?"

Ομιλητής: Prof. Aharon Oren

Πληροφορίες:
Τηλ.: 25002218
www.cut.ac.cy/events

Τεχνολογικό
Πανεπιστήμιο
Κύπρου

Σύντομο Βιογραφικό:

Prof. Aharon Oren

Prof. Aharon Oren is one of the world's greatest experts in geobiology and the microbiology of extremophile organisms. Prof. Aharon Oren was born in Zwolle, the Netherlands, in 1952. He received an M.Sc. degree in microbiology and biochemistry from the University of Groningen (1974), and a Ph.D. in microbiology from the Hebrew University of Jerusalem (1979). After a post-doctoral period at the University of Illinois at Urbana-Champaign he joined the faculty of the Hebrew University of Jerusalem where he currently is professor of microbial ecology. His research centers on the study of hypersaline environments and the halophilic microorganisms inhabiting them. He has a great interest in the taxonomy and nomenclature of prokaryotes and he is past president and past executive secretary of the International Committee on Systematics of Prokaryotes. He is editor-in-chief of the International Journal of Systematic and Evolutionary Microbiology, managing editor of Extremophiles, and section editor of FEMS Microbiology Letters. He is a fellow of the American Academy of Microbiology and he received honorary doctorates from the University of Osnabrück, Germany (2010) and from the Charles University in Prague (2015). He has published more than 650 research papers and 17 books.

Σύντομη Περίληψη Ομιλίας:

Halophilic and halotolerant microorganisms that inhabit hypersaline environments are phylogenetically diverse. However, at the highest salt concentrations the diversity of organisms decreases greatly. Oxygenic and anoxygenic photosynthesis, aerobic respiration and denitrification can proceed at or near NaCl saturation, but other processes important in low-salt ecosystems were never shown to occur in hypersaline environments. Dissimilatory sulfate reduction, methanogenesis from different substrates, autotrophic nitrification, autotrophic sulfur oxidation etc. all have a well-defined upper salinity limit. Thus, methanogenesis by reduction of CO2 with H2 was never shown to function above 12% salt, and the upper salinity for methane formation from acetate is even lower. On the other hand, methane formation from methylated amines can proceed at >25% salt. Autotrophic oxidation of ammonia to nitrite was never observed above 14% salt. Dissimilatory sulfate reduction with lactate as energy source was found at >24% salt, while the salinity range for the use of acetate by sulfate reducers is much more restricted. Thermodynamic considerations may explain these observations at least in part. Whether an organism can grow at high salt concentrations depends on the amount of energy gained in the dissimilatory reactions and on the amount of energy necessary to maintain osmotic balance between the cytoplasm and the outside medium. The energy needed to regulate the intracellular solute concentrations depends not only on the medium salinity but also on the strategy used for osmotic adaptation. Accumulation of KCl as the osmotic solute is energetically less costly than the biosynthesis of organic osmotic solutes. Most members of the Bacteria maintain low intracellular ion concentrations and synthesize organic solute. This mode of life may be too costly for organisms that gain only little energy from processes such as autotrophic nitrification (oxidation of ammonia to nitrite and oxidation of nitrite to