

# 4<sup>th</sup> International Conference on **Nanotek & Expo**

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## **The use of constructed nano and micro-filtration membrane as a confine bioreactor for microbial growth and extracellular digestive enzymes secretion**

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The role of construction semi-permeable membrane as a confine environment for cells growth and proliferation, postulated a significant potential utilities for industry and research, as well. Small particles such as bacteria present a challenging in practical administer for viability, transportation and site control. The SBP – Small Bioreactor Platform technology presents a successful confine environment for microorganism's growth and administration. One of the technology applications studied was the effect of confine environment on bacterial extracellular digestive enzymes secretion in order to enhance wastewater treatment plants (WWTP) yields, without the need for infrastructure upgrading. The initial results indicated significant extracellular proteins induction by a microbial culture in a confine environment (SBP capsule), in comparison to the same bacterial culture, but in a suspended growth state. The lecture will present the technique for nano & microfiltration membrane construction, including upscale or down scale membrane pore sizes, the basic formulation of confine environment (SBP capsule), and the concept for technology implementation for the usage of extracellular digestive enzymes secretion in WWTP modeling.

### **Biography**

Ofir Menashe specializes in environmental microbiology. He is the inventor of the Small Bioreactor Platform (SBP) technology for water treatments. He is a faculty member, in Water Industries Engineering department, School of Engineering, on the sea of Galilee, Israel, as well, the head of Water Technologies Practical Engineering studies, at Kinneret Technology College, on the Sea of Galilee, Israel. He founded and manages his company, Bio-Castle, which is aimed to commercializing the applications of the SBP technology. He received his PhD in Biotechnology and Food Engineering (2008), and his MSc in Medical Science (2002) from the Technion- Israel Institute of Technology. He holds a BSc in Life Sciences (1996) from Ben-Gurion University of the Negev, Israel.

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