

October 29-30, 2018  
Budapest, HungaryYosef Steinberger et al., Expert Opin Environ Biol 2018 Volume: 7  
DOI: 10.4172/2325-9655-C7-038

## IMPACT OF OIL-SPILL CONTAMINATION ON SOIL BACTERIAL COMMUNITY: A 40-YEAR HISTORY OF REHABILITATION IN THE ARAVA VALLEY

**Yosef Steinberger<sup>1</sup>, Ruben Girsowicz<sup>1</sup>, Oksana Koryachenko<sup>1</sup>,  
Chen Sherman<sup>1</sup> and Einav Mayzlish-Gati<sup>2</sup>**

<sup>1</sup>The Mina and Everard Goodman Faculty of Life Sciences-Bar-Ilan University, Israel

<sup>2</sup>Israel Plant Gene Bank-ARO, Israel

**T**he present study had evaluated the effect of crude oil contamination on a microbial community in hyper-arid soils. The Evrona nature reserve of Israel, situated in the Arava, was exposed twice in the last 40 years to petroleum-hydrocarbon-spill pollution. The first pollution event took place 40 years ago and was never treated, presenting a unique future time-point perspective to the current (2014) contamination event. Soil samples were collected after the second spill; abiotic properties and bacterial diversity in the sampled soil were analyzed. The results showed that there is a significant decrease over time in the number of observed bacterial species in the contaminated samples coupled together with a bacterial species replacement toward species capable of using source oil as the sole carbon and energy source. The presence of petroleum in soil significantly changed the composition and functional diversity of a microbial community and the Evrona nature reserve is still in the middle of a bioremediation process even 40 years after the crude oil contamination

### Biography

Yosef Steinberger is a Professor of Ecology at Bar-Ilan University, Israel. One of his main interests is in the relationship of soil invertebrates and detrital food web structure to primary production in arid, semi-arid, and agro ecosystems. Other interests include the monitoring of rangeland conditions (health), assessment of the success of rehabilitation efforts in disturbed rangelands, and biological management of soil ecosystems for sustainable agriculture. He has supervised over 60 students (MSc, PhD, and Postdoctoral Fellows), published over 200 publications in refereed journals.

[ysteinberger@gmail.com](mailto:ysteinberger@gmail.com)