Growing bacteria under photovoltaic panels

Do solar panels harbor microbial communities?
Here we show that solar panels in a Mediterranean city (Valencia,Spain) harbor a highly diverse microbial communitywith more than 500 different species per panel,most of which belong to drought-,heat- and radiation-adapted bacterial genera,and sun-irradiation adapted epiphytic fungi.

Are solar panel bacteria extremophile?
A review of the ecology of the main bacterial taxa we identified gives more insights of the extremophile characterof the solar panel bacteriome. Indeed,several of the most frequent Deinococcus spp. and other solar-panel bacteria have been described as inhabitants of relatively mild desertic areas as well as polar environments.

Are solar panels microbial?
Microorganisms colonize a wide range of natural and artificial environments although there are hardly any dataon the microbial ecology of one the most widespread man-made extreme structures: solar panels.

Does microbial colonization affect the efficiency of photovoltaic panels?
Shirakawa,M. A. et al. Microbial colonization affects the efficiency of photovoltaic panelsin a tropical environment. J. Environ. Manage. 157,160-167 (2015). Sim,K. et al. Improved detection of bifidobacteria with optimised 16S rRNA-gene based pyrosequencing. PLoS One 7,e32543,10.1371/journal.pone.0032543 (2012).

Do solar panel microorganisms adapt to sun exposure?
The detailed analysis of the habitats where the solar panel microorganisms have previously been detected indicates their strong adaptation to sun exposure,which can only be partially reproduced by stress characterization on pure microbial cultures.

What makes a solar panel a unique biotope?
Solar panels are unique biotopes characterized by a smooth flat glass or glass-like surface, minimum water retention capacity and maximum sunlight exposure, all of which determine circadian and annual peaks of irradiation, desiccation and heat.

Today, one of the primary challenges for photovoltaic (PV) systems is overheating caused by intense solar radiation and elevated ambient temperatures [1,2,3,4].To prevent immediate declines in efficiency and long ...

Agro-photovoltaic systems are of interest to the agricultural industry because they can produce both electricity and crops in the same farm field. In this study, we aimed to simulate staple crop yields under agro ...

We conducted a systematic investigation into the effects of small-scale light stress caused by shading of PV

panels and sampling depth on the composition, diversity, survival strategy, and key driving factors of soil ...

Here we show that solar panels in a Mediterranean city (Valencia, Spain) harbor a highly diverse microbial community with more than 500 different species per panel, most of ...

A study performed on subaerial solar panel biofilms in São Paulo revealed that dust, pollen and other debris covering the solar panel surfaces accumulated in time and included abundant ...

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