Supplementary information

Figure S1. Geographical location of the study sites. Isoclines on the map showing aridity index (P/PET). The pictures show the sparsely vegetated rocky slopes at the arid site (Sede Boqer) and the bare rocky slopes at the hyperarid site (Uvda Valley).

Table S1. Characteristics of the two sampling sites (below).

Table S2. Geological parameters of the subjected lithologies.

Table S3. Bacterial richness and diversity estimates of the samples (separate spreadsheet file).

Table S4. Variance partitioning and testing of the differences in the bacterial communities between the samples (separate spreadsheet file).

Table S5. Differences in phyla and order composition between the sample types tested (separate spreadsheet file).

Table S1. Characteristics of the two sampling sites

Parameter	Arid site (Sede-Boqer)	Hyperarid site (Uvda Valley)	Reference
Elevation (m.a.s.l)	400-700	400-500	
Annual rain precipitation (P; mm yr^{-1})	80-120	10-20	(Goldreich, 2013)
Potential evaporation (PET; mm)	2000	4000	(Bruins, 2012)
Aridity Index (P/PET)	Arid (0.05)	Hyperarid (0.005)	
Bedrock units	Late Cretaceous to Tertiary age; composed of marine sediments, mainly limestone, dolomite, chalk, marl and chert		(Wieler et al., 2016)
Distance to nearest sea	Mediterranean Sea – 80 km; Red Sea – 140 km	Mediterranean Sea –160 km; Red Sea – 40	
Rain source	Mediterranean Sea and Red Sea Trough		(Goldreich, 2013)
Wet season	December to March		
Mean annual rainy days	27	18	
Mean annual dew days	200	NA	(http://www.ims.gov.il/IMSEng/CLIMATE)
Mean annual dew precipitation (mm)	20	NA	
Dewpoint (°C)	7-14	NA	
Mean annual foggy days	NA	3	
Mean annual temperature (°C)	24	31	
Mean annual relative humidity (%)	40	NA	

Table S2: Geological parameters of the subjected lithologies.

Rock properties	Limestone (arid; Shivta Formation)			Dolomite (hyperarid; Gerofit Formation)		
	Dolomite	Calcium	Quartz	Dolomite	Calcium	Quartz
BRC mineralogy (%)	0	95	3	90	2	1
Host rock mineralogy (%)	0	95	0	95	0	1
Porosity (%)	13.5 ± 2.2			8.25 ± 1.3		
Permeability (miliDarcy)	0.1 – 3.8			0.05 – 0.41		
Surface penetration resistance (kg cm^{-1})	100 – 365			130 – 230		

References

Goldreich, Y. (2013). *Climate of Israel: observation, research and application.* Place of publication not identified: Springer.

Bruins, H. J. (2012). Ancient desert agriculture in the Negev and climate-zone boundary changes during average, wet and drought years. *Journal of Arid Environments*, *86*, 28–42. https://doi.org/10.1016/j.jaridenv.2012.01.015

Wieler, N., Avni, Y., & Rosensaft, M. (2016). The significance of the geological strata on desert runoff agriculture: Indications for stable desert environment over the last 1600 years in southern Israel. *Journal of Arid Environments*, *135*, 147–163. https://doi.org/10.1016/j.jaridenv.2016.08.010