

TABLE S5- Archaea detected on limestone cultural heritage by molecular methods

Name of the Cultural Heritage	Phylum	Class	Order	Family	Genus	Specie	Culture	Molecular biology	Indoors/ Outdoors	Country	Color	Reference
Petroglyph sites from the Negev Desert	Asgard group	not identified	not identified	not identified	not identified	not identified	none	whole-genome shotgun sequencing	Outdoors	Israel	/	Nir et al., 2022 [24]
Petroglyph sites from the Negev Desert	Diapherotrites	not identified	not identified	not identified	not identified	not identified	none	whole-genome shotgun sequencing	Outdoors	Israel	/	Nir et al., 2022 [24]
Petroglyph sites from the Negev Desert	Parvarchaeota	not identified	not identified	not identified	not identified	not identified	none	whole-genome shotgun sequencing	Outdoors	Israel	/	Nir et al., 2022 [24]
Petroglyph sites from the Negev Desert	Aenigmarchaeota	not identified	not identified	not identified	not identified	not identified	none	whole-genome shotgun sequencing	Outdoors	Israel	/	Nir et al., 2022 [24]
Petroglyph sites from the Negev Desert	Nanoarchaeota	not identified	not identified	not identified	not identified	not identified	none	whole-genome shotgun sequencing	Outdoors	Israel	/	Nir et al., 2022 [24]
Petroglyph sites from the Negev Desert	Nanohaloarchaeota	not identified	not identified	not identified	not identified	not identified	none	whole-genome shotgun sequencing	Outdoors	Israel	/	Nir et al., 2022 [24]
Petroglyph sites from the Negev Desert	Thaumarchaeota	not identified	not identified	not identified	not identified	not identified	none	whole-genome shotgun sequencing	Outdoors	Israel	/	Nir et al., 2022 [24]
Petroglyph sites from the Negev Desert	Aigarchaeota	not identified	not identified	not identified	not identified	not identified	none	whole-genome shotgun sequencing	Outdoors	Israel	/	Nir et al., 2022 [24]
Petroglyph sites from the Negev Desert	Crenarchaeota	not identified	not identified	not identified	not identified	not identified	none	whole-genome shotgun sequencing	Outdoors	Israel	/	Nir et al., 2022 [24]
Petroglyph sites from the Negev Desert	Korarchaeota	not identified	not identified	not identified	not identified	not identified	none	whole-genome shotgun sequencing	Outdoors	Israel	/	Nir et al., 2022 [24]
Petroglyph sites from the Negev Desert	Euryarchaeota	not identified	not identified	not identified	not identified	not identified	none	whole-genome shotgun sequencing	Outdoors	Israel	/	Nir et al., 2022 [24]
Petroglyph sites from the Negev Desert	Thaumarchaeota	not identified	not identified	not identified	not identified	not identified	none	whole-genome shotgun sequencing	Outdoors	Israel	/	Nir et al., 2022 [24]

Petroglyph sites from the Negev Desert	Candidatus Bathyarchaeota	not identified	not identified	not identified	not identified	not identified	none	whole-genome shotgun sequencing	Outdoors	Israel	/	Nir et al., 2022 [24]
Petroglyph sites from the Negev Desert	Crenarchaeota	not identified	not identified	not identified	not identified	not identified	none	whole-genome shotgun sequencing	Outdoors	Israel	/	Nir et al., 2022 [24]
The House of the Bicentenary (Herculaneum)	Euryarchaeota	Halobacteria	Haloferacales	Haloferacaceae	Haloferax	mediterannei	DSMZ media 372, growth medium containing artificial salt water (SW) (18%, wt/vol)	CDM (PCR)	Indoors	Italy	pink	Tescari et al., 2018 [4]
Holy Aedicule (Holly rock)	not identified	not identified	not identified	not identified	not identified	not identified	none	NGS	Indoors	Israel	/	Delegou et. al., 2022 [38]
Tombstones of the Monumental Cemetery of Milano	not identified	not identified	not identified	not identified	not identified	not identified	none	NGS	Outdoors	Italy	/	Gambino et al., 2021 [33]
The Old Cathedral of Coimbra	Nitrososphaerota	Nitrososphaeria	Nitrososphaerales	Nitrososphaeraceae	Candidatus Nitrosococcus	not identified	none	NGS	Both	Portugal	dark, green	Coelho et al 2021 [57]
The Old Cathedral of Coimbra	Nitrososphaerota	Nitrososphaeria	Nitrosopumilales	Nitrosopumilaceae	Candidatus Nitrosotenuis	not identified	none	NGS	Both	Portugal	dark, green	Coelho et al 2021 [57]
The Old Cathedral of Coimbra	Euryarchaeota	Halobacteria	Halobacteriales	Halococcaceae	Halococcus	not identified	none	NGS	Both	Portugal	dark	Coelho et al 2021 [57]
The Old Cathedral of Coimbra	Euryarchaeota	Halobacteria	Halobacteriales	Halococcaceae	Halalkalicoccus	not identified	none	NGS	Both	Portugal	dark	Coelho et al 2021 [57]
The Old Cathedral of Coimbra	Candidatus Thermoplasmatota	Thermoplasmatota	not identified	not identified	not identified	not identified	none	NGS	Both	Portugal	/	Coelho et al 2021 [57]
The Old Cathedral of Coimbra	Candidatus Woeseearchaeota	not identified	not identified	Woeseearchaeia	not identified	not identified	none	NGS	Both	Portugal	/	Coelho et al 2021 [57]
The Old Cathedral of Coimbra	Euryarchaeota	Halobacteria	Haloferacales	Haloferacaceae	not identified	not identified	none	NGS	Both	Portugal	/	Coelho et al 2021 [57]
The Old Cathedral of Coimbra	Euryarchaeota	not identified	not identified	not identified	not identified	not identified	none	NGS	Both	Portugal	/	Coelho et al 2021 [57]
The Old Cathedral of Coimbra	Nanoarchaeota	not identified	not identified	not identified	not identified	not identified	none	NGS	Both	Portugal	/	Coelho et al 2021 [57]
The Old Cathedral of Coimbra	Euryarchaeota	Methanobacteria	Methanobacteriales	Methanobacteriaceae	not identified	not identified	none	NGS	Both	Portugal	/	Coelho et al 2021 [57]
Austrian petroglyphs from Hallstatt-Dachstein/Salzkammergut	Nitrososphaerota	Nitrososphaeria	Nitrososphaerales	not identified	not identified	not identified	none	Nanopore sequencing	Outdoors	Austria	/	Rabbachin et al., 2023 [15]
Church of San Leonardo di Siponto	Euryarchaeota	Halobacteria	Halobacteriales	not identified	not identified	not identified	none	NGS	Outdoors	Italy	gray-brownish and white	Chimienti et al., 2016 [62]

Lascaux Cave	not identified	not identified	not identified	not identified	not identified	not identified	none	NGS	Cave	France	dark	Bontemps et al., 2023 [9]
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