

Tracing microbial biogeochemistry at the top of the critical zone in arid and semi-arid drylands

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Drylands cover approximately 40% of the earth's land surface. The soil surface in arid/semi-arid drylands commonly hosts biological soil crusts, which include diverse cyanobacteria, algae, fungi, bacteria and lichens. Organic molecules produced by this microbial community and transported to depositional basins serve as biomarkers for the occurrence of and biogeochemical processes in biological soil crusts in the past, contributing to our understanding of past aridity.