

Supplementary information for

Microbial community structure along a horizontal oxygen gradient in a Costa Rican volcanic influenced acid rock drainage system

Alejandro Arce-Rodríguez^{1,α}, Fernando Puente-Sánchez², Roberto Avendaño³, Eduardo Libby⁴, Raúl Mora-Amador^{5,6}, Keilor Rojas-Jimenez⁷, María Martínez⁸, Dietmar H. Pieper¹ & Max Chavarría^{3,4,9*}

¹Microbial Interactions and Processes Research Group, Helmholtz Centre for Infection Research, 38124, Braunschweig, Germany ²Systems Biology Program, Centro Nacional de Biotecnología (CNB-CSIC), C/Darwin 3, 28049 Madrid, Spain ³Centro Nacional de Innovaciones Biotecnológicas (CENIBiot), CeNAT-CONARE, 1174-1200, San José, Costa Rica ⁴Escuela de Química, Universidad de Costa Rica, 11501-2060, San José, Costa Rica ⁵Escuela Centroamericana de Geología, Universidad de Costa Rica, 11501-2060, San José, Costa Rica ⁶Laboratorio de Ecología Urbana, Universidad Estatal a Distancia, 11501-2060, San José, Costa Rica ⁷Escuela de Biología, Universidad de Costa Rica, 11501-2060, San José, Costa Rica ⁸Observatorio Vulcanológico y Sismológico de Costa Rica, Universidad Nacional (OVSICORI-UNA), 2386-3000, Heredia, Costa Rica ⁹Centro de Investigaciones en Productos Naturales (CIPRONA), Universidad de Costa Rica, 11501-2060, San José, Costa Rica.

Keywords: Costa Rica, San Cayetano, Acid Rock Drainage, Microbial Communities, Oxygen gradient.

SUPPLEMENTARY TABLES

Table S1. DNA sequence and phylogenetic assignment of the most abundant phylotypes detected in San Cayetano using Illumina-based amplicon deep-sequencing.

See Excel file.

LEGENDS OF SUPPLEMENTARY FIGURES

Figure S1. Alpha-diversity estimations of San Cayetano samples. Richness indicate that 63% of the samples presented richness values higher than 500 OTUs, and that 88% of the samples presented values of the Shannon index greater than 3.

Figure S2. Canonical coordination analysis (CCA) of the microbial communities in San Cayetano river. Vector fitting of environmental variables was performed to the CCA ordination. The direction and length of the vectors are determined by the envfit() function in the vegan package. Only vectors with a p-value < 0.05 are shown.

LEGENDS OF SUPPLEMENTARY VIDEOS

Video S1. Rising of the San Cayetano river. The river is born in a rocky area where water emerges from the depths.