**Supplementary Material**

**Long Term Effects of Periodical Fires in Archaeal Communities from Brazilian Cerrado Soils**

**Suplementary Table 1.** Physicochemical parameters of the Cerrado *sensu stricto* soils from the Control area (C) and the Burned area (Q) at the Reserva Ecológica do IBGE, Brasilia, Brazil . Asterisk indicates statistical differences indentified in Welch t-test analysis.

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Area** | |
|  | C | Q |
| pH (H20) | 4.97 ± 0.05 | 4.93 ± 0.05 |
| P (ppm) | 3.73 ± 0.49 | 4.46 ± 0.40 |
| Ca (cmolc/dm3) | 0.73 ± 0.15 | 0.60 ± 0.10 |
| Mg (cmolc/dm3) | 0.2 ± 0.00 | 0.2 ± 0.00 |
| K (cmolc/dm3) | 0.13 ± 0.00 | 0.13 ± 0.00 |
| Na (cmolc/dm3) | 0.13 ± 0.05 | 0.10 ± 0.00 |
| Al (cmolc/dm3) | 0.96 ± 0.11 | 0.75 ± 0.07 |
| H + Al (cmolc/dm3) | 9.46 ± 0.40 | 8.6 ± 0.69 |
| Sum Bases (cmolc/dm3) | 1.16 ± 0.28 | 1.00 ± 0.15 |
| CEC (cmolc/dm3) | 10.66 ± 0.57 | 9.66 ± 0.57 |
| C (g/kg) | 31.13 ± 3.78 | 28.96 ± 2.45 |
| N (g/kg) | 3.06 ± 0.37 | 2.73 ± 0.11 |
| NO3 (g/kg) | 1.60 ± 0.14 | 1.36 ± 0.28 |
| NO2 (g/kg) | 0.80 ± 0.14 | 0.70 ± 0.10 |
| NH3 (g/kg) | **1.30 ± 0.14\*** | **0.66 ± 0.15** |
| OM (g/kg) | 53.56 ± 6.52 | 49.8 ± 4.21 |
| Cu (ppm) | 0.54 ± 0.09 | 0.51 ± 0.05 |
| Fe (ppm) | 1084 ± 73.36 | 999 ± 63.63 |
| Mn (ppm) | 13.63 ± 1.34 | 17.48 ± 1.27 |
| Zn (ppm) | 1.23 ± 0.18 | 1.49 ± 0.12 |

**Supplementary Table 2.** Number of high quality sequences for each 16S rRNA and *amoA* gene library evaluated in this study.

|  |  |  |
| --- | --- | --- |
| Gene | Clone Library | Number of sequences |
| **16S rRNA** | Ca | 80 |
| Cb | 79 |
| Cc | 74 |
| Qa | 82 |
| Qb | 101 |
| Qc | 50 |
| ***amoA*** | amo\_Ca | 44 |
| amo\_Cb | 45 |
| amo\_Cc | 39 |
| amo\_Qa | 47 |
| amo\_Qb | 46 |
| amo\_Qc | 30 |



**Supplementary Figure 1**. Rarefaction curves (with 97% sequence similarity) for archaeal 16S rRNA gene sequences from Cerrado *sensu stricto* soils sampled in the Control (C) and Burned (Q) areas at the Reserva Ecológica do IBGE, Brasilia, Brazil.



**Supplementary Figure 2**. Non-metric multidimensional scaling (NMDS) plot of archaeal communities (inferred by 16S rRNA genes) from soils of Cerrado *sensu stricto* protected from fires (C) and submitted to biennial fires (Q) at the Reserva Ecológica do IBGE, Brasilia, Brazil.