Table S3: *Parinari* grassland soils characterization.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| # | **Depth (cm)** | **Particle size analysis** | | | **pH** | | | **Exchangeable bases (Cmole.dm-3)** | | | | **P (mg.dm-3)** | **Al (mg.dm-3)** | **Al + H (mg.dm-3)** | **CEC**  **(pH 7)** | **Sum of bases (Cmole.dm-3)** | **V (%)** | m(%) |
| **clay (%)** | **silt (%)** | **sand (%)** | **H2O** | **KCl** | **Ca2Cl** | **K** | **Na** | **Ca** | **Mg** |
| 2149 | 0-10 | 3.8 | 1.9 | 94.3 | 4.9 | 3.8 | 3.9 | 1.48 | 0.68 | 0.18 | 0 | 1.39 | 0.60 | 0.6 | 2.94 | 2.34 | 79.61 | 20.39 |
| 2149 | 10-30 | 3.45 | 2.16 | 94.38 | 5.10 | 4.2 | 4.15 | 4.91 | 0.93 | 0.07 | 0 | 1.41 | 0.44 | 0.4 | 6.31 | 5.91 | 93.66 | 6.34 |
| 2149 | 30-50 | 7.9 | 3.35 | 88.75 | 5.4 | 4.4 | 4.2 | 0.11 | 4.68 | 0.49 | 0 | 1.34 | 0.50 | 0.5 | 5.78 | 5.28 | 91.35 | 8.65 |
| 2151 | 0-10 | 4.2 | 2.05 | 93.75 | 4.8 | 4 | 3.9 | 0.11 | 0.68 | 0 | 0 | 1.25 | 0.7 | 0.7 | 1.49 | 0.79 | 53.02 | 46.98 |
| 2151 | 10-30 | 8 | 5.25 | 86.75 | 4.9 | 4.3 | 4.05 | 0.46 | 0.68 | 0.12 | 0 | 1.80 | 0.72 | 0.7 | 1.96 | 1.26 | 64.23 | 35.77 |
| 2151 | 30-50 | 12.5 | 6.86 | 80.63 | 5.07 | 4.25 | 4.05 | 0.80 | 0.43 | 0.26 | 0 | 1.55 | 1.09 | 0.85 | 2.33 | 1.48 | 63.55 | 36.45 |
| 2153 | 0-10 | 0 | 2.5 | 97.5 | 4.9 | 3.66 | 3.8 | 0.8 | 0.68 | 0.38 | 0 | 1.30 | 0.50 | 0.5 | 2.36 | 1.86 | 78.80 | 21.20 |
| 2153 | 10-30 | 3.4 | 0 | 96.6 | 5.15 | 4.18 | 4.2 | 0.11 | 0.18 | 0.23 | 0 | 1.34 | 0.36 | 0.35 | 0.87 | 0.52 | 59.68 | 40.32 |
| 2153 | 30-50 | 2.5 | 1.25 | 96.25 | 5.15 | 4.41 | 4.35 | 1.83 | 0.94 | 0.09 | 0 | 1.80 | 0.63 | 0.5 | 3.35 | 2.85 | 85.09 | 14.91 |
| 2165 | 0-10 | 2.9 | 3.35 | 93.75 | 4.91 | 3.75 | 3.9 | 5.59 | 0.68 | 0.14 | 0 |  | 0.20 | 0.2 | 6.60 | 6.40 | 96.97 | 3.03 |
| 2165 | 10-30 | 2.6 | 1.15 | 96.25 | 5.22 | 4.32 | 4.2 | 1.14 | 0.68 | 0.05 | 0 | 0.39 | 0.41 | 0.4 | 2.27 | 1.87 | 82.37 | 17.63 |
| 2165 | 30-50 | 2.2 | 5.44 | 92.38 | 5.36 | 4.46 | 4.25 | 3.88 | 0.68 | 0.14 | 0 | 1.75 | 0.35 | 0.35 | 5.04 | 4.69 | 93.06 | 6.94 |
| 23315 | 0-10 | 0.0 | 8.3 | 91.8 | 5.8 | 4.9 | 4.9 | 0.03 | 0.54 | 1.89 | 0.00 | 0.570 | 0.30 | 0.3 | 2.76 | 2.46 | 89.12 | 10.88 |
| 23315 | 10-30 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23315 | 30-50 | 0.1 | 7.4 | 92.5 | 5.0 | 3.9 | 4.0 | 0.03 | 0.22 | 1.36 | 0.00 | 0.615 | 0.1 | 0.1 | 1.71 | 1.61 | 94.16 | 5.84 |
| 23618 | 0-10 | 0 | 15 | 85 | 4.81 | 3.97 |  | 0.31 | 1.08 | 0.13 | 0.61 | 0.71 | 0.0 |  |  |  |  |  |
| 23618 | 10-30 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23618 | 30-50 | 3.3 | 9.2 | 87.5 | 5.02 | 4.3 | 4.17 | 0.28 | 1.18 | 0.11 | 0.28 | 1.02 | 0.00 | 0.4 | 1.07 | 0.67 | 62.55 | 37.45 |
| 23618 | 0-10 | 0 | 5 | 95 | 4.76 | 4.07 | 3.96 | 0 | 0 | 0.00 | 0 | 0.89 | 0.50 | 0.5 | 0.50 | 0.00 | 0.40 | 99.60 |
| 23618 | 10-30 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23618 | 30-50 | 0 | 2.5 | 97.5 | 4.86 | 4.43 | 4.23 | 0 | 0 | 0.00 | 0 | 0.71 | 0.40 | 0.4 | 0.40 | 0.00 | 0.50 | 99.50 |
| 27005 | 0-10 | 0.00 | 0.00 | 100.00 | 4.38 | 4.01 | 3.97 | 2.81 | 0.00 | 1.98 | 5.71 | 3.48 | 0.50 | 4.50 | 15.50 | 10.50 | 67.74 | 32.26 |
| 27005 | 10-30 | 0.00 | 0.00 | 100.00 | 3.98 | 4.21 | 4.09 | 0.91 | 0.00 | 2.62 | 7.61 | 3.43 | 0.40 | 3.90 | 15.44 | 11.14 | 72.15 | 27.85 |
| 27005 | 30-50 | 0.00 | 2.50 | 97.50 | 3.89 | 4.33 | 4.09 | 0.91 | 0.00 | 0.97 | 1.78 | 4.21 | 0.50 | 3.40 | 7.56 | 3.66 | 48.41 | 51.59 |
| 27006 | 0-10cm | 0.00 | 2.50 | 97.50 | 4.07 | 3.85 | 3.77 | 4.72 | 0.00 | 1.07 | 3.40 | 5.21 | 0.60 | 4.50 | 14.29 | 9.19 | 64.31 | 35.69 |
| 27006 | 10-30cm | 0.00 | 3.75 | 96.25 | 4.26 | 4.20 | 4.04 | 1.86 | 0.00 | 1.50 | 4.64 | 6.21 | 0.60 | 4.20 | 12.81 | 8.01 | 62.53 | 37.47 |
| 27006 | 30-50cm | 0.00 | 2.50 | 97.50 | 4.49 | 4.30 | 4.14 | 0.91 | 0.00 | 1.90 | 6.52 | 4.34 | 0.60 | 3.90 | 13.82 | 9.32 | 67.44 | 32.56 |
| 27010 | 0-10cm | 0.50 | 12.00 | 87.50 | 4.89 | 4.35 | 4.38 | 10.08 | 0.00 | 17.33 | 0.00 | 3.21 | 0.70 | 1.80 | 29.91 | 27.41 | 91.64 | 8.36 |
| 27010 | 10-30cm | 11.00 | 6.50 | 82.50 | 4.40 | 4.22 | 4.04 | 5.49 | 0.00 | 0.00 | 0.00 | 5.34 | 0.60 | 1.20 | 7.29 | 5.49 | 75.31 | 24.69 |
| 27010 | 30-50cm |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 27011 | 0-10cm | 0.00 | 3.75 | 96.25 | 4.73 | 3.99 | 4.06 | 10.08 | 0.00 | 0.00 | 0.00 | 3.75 | 1.00 | 1.40 | 12.48 | 10.08 | 80.77 | 19.23 |
| 27011 | 10-30cm | 8.50 | 11.50 | 80.00 | 4.67 | 4.21 | 4.05 | 6.41 | 0.00 | 4.39 | 0.00 | 5.16 | 1.20 | 2.20 | 14.20 | 10.80 | 76.06 | 23.94 |
| 27011 | 30-50cm | 8.20 | 9.30 | 82.10 | 4.80 | 4.19 | 4.06 | 6.41 | 0.00 | 15.58 | 0.00 | 3.52 | 0.10 | 1.00 | 23.09 | 21.99 | 95.24 | 4.76 |