**Supplementary data**

**Table A.** Universal primers used to amplify 16S rDNA.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Reference** | **Sequence** | **Target microorganism** | **Position** | **Name** |
| Weisburg WG, et al. 1991 | 5΄-AGAGTTTGATCCTGGCTTAG-3΄ | Bacteria | Fwd Primer | B1 (fD1) |
| Weisburg WG, et al. 1991 | 5΄-TAAGGAGGTGATCCAGC-3΄ | Bacteria | Rev Primer | B2 (rD1) |
| Frank JA, et al. 2008 | 5΄-AACAGAGTTTGATYMTGGCTCAG-3΄ | Bacteria | Fwd Primer | 16F |
| J.R. Marchesi et al. 1998 | 5΄-CAGGCCTAACACATGCAAGTC-3΄ | Bacteria | Fwd Primer | 63F |
| Delong EF. 1992 | 5΄-TTCCGGTTGATCCYGCCGGA-3΄ | Archaea & Bacteria | Fwd Primer | 21F |
| Weisburg WG, et al. 1991  Banning et al. 2005 | 5΄-ACGGTTACCTTGTTACGACTT-3΄ | Archaea & Bacteria | Rev Primer | 1492R |
| Pantos, O., R. 2003 | 5΄-TGCGGCTGGATCACCTCCTT-3΄ | Bacteria | Rev Primer | 1542R |
| Delong EF. 1992 | 5΄-YCCGGCGTTGAMTCCAATT-3΄ | Archaea & Bacteria | Rev Primer | 958R |
| J.R. Marchesi et al. 1998 | 5΄-GGGCGGWGTGTACAAGGC-3΄ | Bacteria | Rev Primer | 1387R |
| Banning et al. 2005  Grosskopf, et al. 1998 | 5΄-ACGGGTGMGTAACRCGT-3΄ | Bacteria | Fwd Primer | 109F |

**Table B.** Location of the Forumad chromite mine samples.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample site** | **Sample** | **Elevation from the sea (m)** | **Geographic coordinates** | **pH** |
| Mirmahmoud Aqueduct | Water | 1462 | 40 S 481442 4046906 | 8.25 |
| Oulang Aqueduct | Water & Soil | 1793 | 40 S 478093 4042423 | 9.3 |
| Arian Mine | Water, Soil & Silt | 1955 | 40 S 484786 4047961 | 9.2 |
| Pishkar 1 Mine | Water & Soil | 1662 | 40 S 482479 4047626 | 9 |
| Pishkar 12 Mine | Water & Soil | 1620 | 40 S 483566 4047978 | 9 |
| Pishkar 14 Mine | Water, Soil & Silt | 1805 | 40 S 484400 4047964 | 9.18 |
| Area around of mine | Soil | ~1500 | - | 8.9 |

**Table C.** Ionic compounds of Forumad chromite mine.

|  |  |
| --- | --- |
| **Ionic compound** | **Value (%)** |
| Cr2O3 | 41 |
| Al2O3 | 11.2 |
| MgO | 19.5 |
| FeO | 13.6 |
| SiO2 | 11.9 |
| PbO | 1 |
| MnO | 1 |