**Table 1** Comparison of Cu, Fe, Zn, Mg by ANN and SRM-1598a concentration (Source: [52])

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Cu** | **Fe** | **Zn** | **Mg** |
| **NIST/SRM-1598a****[Actual value – (ppm)]** | 1.58±0.09 | 1.68±0.06 | 0.88±0.02 | Not given |
| **ANN model (ppm)** | 1.14±0.74 | 1.14±0.32 | 0.88±0.56 | 17.90±3.63 |

**Table 2** LIBS determined concentrations of Cu, Zn, Mg and Fe in malarial blood

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Hours** | **Fe ± 32 ppb** | **Cu ± 78 ppb** | **Zn ± 43 ppb** | **Mg ± 189 ppb** | Cu/Zn  |
| 0 | 1206 | 328 | 1523 | 23880 | 0.215 |
| 24 hours | 1206 | 351 | 1521 | 21843 | 0.231 |
| 48 hours | 805 | 862 | 849 | 19548 | 1.015 |
| 72 hours | 514 | 1846 | 766 | 21317 | 2.410 |
| 96 hours | 674 | 1999 | 499 | 19573 | 4.006 |

**Table 3** Parasite density for blood culture samples

|  |  |  |  |
| --- | --- | --- | --- |
| **Sample type** | **Hours** | **Stage** | **Parasitemia** |
| **Whole blood** | (Control) | No infection | N/A |
| **Whole blood** | 24 | Rings / Merozoites | 15 % |
| **Whole blood** | 48 | Merozoites / Trophozoites | 18 % |
| **Whole blood** | 72 | Trophozoites /Schizonts | 26 % |
| **Whole blood** | 96 | Trophozoites /Schizonts | 40 % |

**Table 4** Pearson correlation between Fe, Cu, Zn and Mg and parasitemia

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Fe** | **Cu** | **Zn** | **Mg** | **Parasitemia** |
| **Fe** | 1 |  |  |  |  |
| **Cu** | **-0.928** | 1 |  |  |  |
| **Zn** | **0.923** | **-0.922** | 1 |  |  |
| **Mg** | 0.663 | -0.611 | **0.825** | 1 |  |
| **Parasitemia** | -0.775 | **0.892** | **-0.881** | **0.805** | 1 |