|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 1 |** Analyzed results of the Physico-chemical Parameter of the wastewater stream of Nalla Lai (n=19) | | | | | | | | | | | | | | | |
| **S.No** | **pH** | **Temp** | **Turbidity** | **DO** | **EC** | **SO42-** | **Cl-** | **Cd** | **Cu** | **Fe** | **Mn** | **Pb** | **Zn** | **BOD** | **COD** |
| 1 | 7.44 | 22 | 4610.20 | 0.94 | 1271 | 21.9 | 60 | 0.3 | 0.204 | 4.479 | 1.483 | 0.012 | 1.046 | 168 | 296 |
| 2 | 7.66 | 26 | 2725 | 2.05 | 1277 | 22.76 | 55.6 | 0.22 | BDL | 1.212 | 0.15 | 0.182 | 2.046 | 130 | 168 |
| 3 | 7.43 | 27 | 3113 | 1.03 | 1365 | 21.70 | 55.6 | 0.016 | BDL | 3.134 | 0.176 | BDL | 0.066 | 112 | 243 |
| 4 | 7.71 | 28 | 3689 | 0.33 | 1396 | 24.2 | 54.18 | BDL | 0.161 | 0.392 | 0.161 | BDL | 0.076 | 121 | 276 |
| 5 | 7.48 | 26 | 1940.24 | 0.74 | 1529 | 23.3 | 46.62 | BDL | 0.012 | BDL | 0.189 | 0.021 | 2.214 | 97 | 229 |
| 6 | 7.67 | 27 | 3635.84 | 0.20 | 1492 | 22.22 | 57.28 | BDL | 0.016 | BDL | 0.161 | BDL | 0.048 | 194 | 315 |
| 7 | 8.55 | 26 | 3645.65 | 1.24 | 1510 | 23.12 | 55.06 | BDL | BDL | 0.149 | 0.49 | BDL | 0.061 | 161 | 311 |
| 8 | 7.78 | 28 | 3459.74 | 1.25 | 1232 | 23.6 | 57.4 | 0.12 | BDL | BDL | 0.251 | BDL | 0.071 | 168 | 312 |
| 9 | 7.75 | 29 | 2313.49 | 0.26 | 1342 | 23.05 | 49.4 | BDL | BDL | 0.186 | 0.215 | BDL | 0.063 | 121 | 291 |
| 10 | 7.91 | 29 | 2111.69 | 1.04 | 1349 | 25.9 | 46.62 | 0.159 | 0.013 | 0.125 | 0.315 | BDL | 0.057 | 100 | 175 |
| 11 | 8.21 | 28 | 2543 | 1.65 | 1367 | 27.6 | 47.06 | 0.095 | BDL | 0.121 | 0.188 | BDL | 0.213 | 96 | 222 |
| 12 | 7.79 | 29 | 3130 | 0.63 | 1272 | 22.9 | 46.62 | 0.007 | BDL | 0.315 | 0.212 | 0.268 | 4.201 | 100 | 219 |
| 13 | 7.69 | 29 | 3343.74 | 0.35 | 1395 | 25.02 | 61.4 | 0.02 | BDL | BDL | 0.312 | BDL | 0.059 | 96 | 228 |
| 14 | 7.78 | 28 | 2981.84 | 0.81 | 1390 | 24.3 | 7.6 | 0.006 | 0.091 | BDL | 0.612 | BDL | 0.129 | 95 | 196 |
| 15 | 8.12 | 29 | 3399 | 1.14 | 1397 | 26.3 | 61.72 | 0.015 | BDL | 0.357 | 0.215 | 0.008 | 0.059 | 100 | 168 |
| 16 | 7.69 | 28 | 4215.73 | 0.69 | 1327 | 24.52 | 66.16 | BDL | 0.013 | 2.173 | 0.61 | BDL | 0.12 | 91 | 221 |
| 17 | 7.62 | 27 | 3386 | 0.26 | 1430 | 24.23 | 75.06 | 0.143 | BDL | 1.635 | 0.219 | BDL | 0.204 | 149 | 272 |
| 18 | 7.92 | 28 | 4155 | 2.80 | 1372 | 25.34 | 79.6 | 0.012 | BDL | 0.822 | 0.237 | BDL | 2.213 | 98 | 176 |
| 19 | 7.95 | 30 | 3490 | 2.67 | 1474 | 30.10 | 72.4 | 0.015 | BDL | 0.118 | 0.521 | BDL | 0.064 | 87 | 170 |

**Table 2 |** Descriptive statistical Analysis Results (n=19) of Nalla Lai wastewater Stream and comparison with Standards

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variables** | **Unit** | **Maximum** | **Minimum** | **Average NEQs, 1997 EPA, Ghana** |
| pH |  | 8.55 | 7.43 | 7.8 6-10 |
| Temp | ºC | 30 | 22 | 27.58 40 |
| Turbidity | NTU | 4610.20 | 1940.24 | 3257.27 - 75 |
| DO | mgL-1 | 2.80 | 0.20 | 1.06 - 1.0 |
| EC | µS/cm | 1529 | 1232 | 1378.26 - 1500 |
| SO4-2 | mgL-1 | 30.10 | 21.70 | 24.32 600 |
| Cl- | mgL-1 | 79.6 | 7.6 | 55.55 1000 |
| Cd | mgL-1 | 0.3 | 0.006 | 0.09 0.1 |
| Cu | mgL-1 | 0.204 | 0.012 | 0.07 1.0 |
| Fe | mgL-1 | 4.48 | 0.12 | 1.09 2.0 |
| Mn | mgL-1 | 1.48 | 0.15 | 0.35 1.5 |
| Pb | mgL-1 | 0.268 | 0.008 | 0.10 0.5 |
| Zn | mgL-1 | 4.20 | 0.05 | 0.68 5.0 |
| BOD | mgL-1 | 194 | 87 | 120.21 80 |
| COD | mgL-1 | 315 | 168 | 236.21 150 |

**Table 3| Correlation Matrix** of Physicochemical Parameters of Wastewater of Study Area

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | pH | Temperature | Turbidity | DO | EC | SO4 | Cl- | Cd | Cu | Fe | Mn | Pb | Zn | BOD | COD |
| pH | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Temperature | 0.3194 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Turbidity | -0.0153 | -0.3133 | 1 |  |  |  |  |  |  |  |  |  |  |  |  |
| DO | 0.3576 | 0.0827 | 0.1139 | 1 |  |  |  |  |  |  |  |  |  |  |  |
| EC | 0.2514 | 0.0690 | -0.1421 | -0.0641 | 1 |  |  |  |  |  |  |  |  |  |  |
| SO4 | 0.4774 | 0.6005 | -0.0815 | 0.5197 | 0.2229 | 1 |  |  |  |  |  |  |  |  |  |
| Cl- | -0.0042 | -0.0157 | 0.4886 | 0.3063 | 0.0491 | 0.1975 | 1 |  |  |  |  |  |  |  |  |
| Cd | -0.3783 | -0.7825 | 0.1151 | -0.0821 | -0.5011 | -0.3622 | 0.1032 | 1 |  |  |  |  |  |  |  |
| Cu | -0.3599 | -0.5872 | 0.5680 | 0.0473 | -0.5233 | -0.3734 | -0.0067 | 0.5691 | 1 |  |  |  |  |  |  |
| Fe | -0.7011 | -0.7680 | 0.5372 | -0.1682 | -0.4154 | -0.5432 | 0.2164 | 0.5288 | 0.5106 | 1 |  |  |  |  |  |
| Mn | -0.1389 | -0.5982 | 0.5357 | 0.0325 | -0.2039 | -0.091 | -0.0395 | 0.508 | 0.623 | 0.6603 | 1 |  |  |  |  |
| Pb | 0.1020 | 0.4228 | -0.2001 | 0.1393 | -0.5609 | -0.3264 | -0.5115 | -0.3163 | -1 | -0.5064 | -0.4089 | 1 |  |  |  |
| Zn | -0.1836 | -0.1408 | -0.0816 | 0.1947 | -0.2504 | -0.2501 | -0.0033 | -0.0089 | -0.0046 | -0.0083 | -0.0763 | 0.836 | 1 |  |  |
| BOD | -0.0819 | -0.5698 | 0.3343 | -0.2794 | -0.0179 | -0.5679 | 0.1458 | 0.7363 | 0.3038 | 0.4404 | 0.1877 | -0.213 | -0.1768 | 1 |  |
| COD | -0.1092 | -0.4203 | 0.2504 | -0.5592 | 0.0543 | -0.5738 | 0.0297 | 0.3899 | 0.4362 | 0.3044 | 0.1581 | -0.279 | -0.2659 | 0.7935 | 1 |