Table 1: Population dynamics (CFU± SE) g-1× 105 dry soil of different groups of bacteria of maize field under organic and chemical treatments at 30 Days After Sowing (DAS), V6 stage and 90 DAS, R6 stage. The bolded figures represent significant increase in population of the specific group of rhizosphere bacteria.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Group of bacteria** | **30 DAS (V6 stage)** | | | **90 DAS (R6 stage)** | | |
|  | **Control** | **Organic** | **Chemical** | **Control** | **Organic** | **Chemical** |
| Heterotrophic bacteria | 37.25±2.75 | 58.88±12.00 | 71.5±4.77 | 40.2±7.07 | 57.5±9.52 | 33.17±8.13 |
| Phosphate solubilising bacteria | 17.75±1.66 | 18.33±3.63 | 29±1.89 | 22.625±6.21 | 49.67±4.91 | 39±3.75 |
| Nitrate reducing bacteria | 54.83±1.45 | 63.38±6.47 | 54.17±4.19 | 58.33±8.67 | 90.63±10.82 | 63±10.07 |
| Nitrifying bacteria | 23.33±8.82 | 27.83±6.93 | 20.83±6.07 | 3.33±1.92 | **44±1.04** | 9.5±0.87 |
| Asymbiotic Nitrogen Fixing bacteria | 18.67±4.8 | 33±6.51 | 20.33±1.48 | 26.5±5.48 | **47.17±6.33** | 18.5±2.75 |
| Starch hydrolysing bacteria | 7.5±.76 | 9.33±1.33 | 10.17±1.96 | 5.67±.33 | 7.33±0.88 | 8.17±0.93 |
| Protein hydrolysing bacteria | 6.83±0.44 | 7.67±2.52 | 3.33±0.33 | 3.67±0.33 | **7.83±1.59** | 3±0.58 |
| Fat solubilising bacteria | 17.83±0.33 | 39.75±1.93 | 40.83±3.00 | 15.83±1.09 | 31.63±1.63 | 33.83±4.59 |

Table 2: Physico-chemical factors of soil under organic and chemical treatments, value ± S.E.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Treatments | pH | EC(µS) | T(oC) | M(%) | OrgC(%) | N(Kg/ha) | P(Kg/ha) | K(Kg/ha) | Zn(ppm) | B(ppm) | S(ppm) |
| Control | 5.87  ±0.07 | 0.078  ±0.005 | 29.8± 1.49 | 10-20 | 0.86  ±0.02 | 155.4  ±0.68 | 257.4  ±0.68 | 609.6  ±0.51 | 2.40  ±0.01 | 0.574  ±0.02 | 18.01±  0.03 |
| Organic | 7.12  ±0.03 | 0.34  ±0.01 | 28.6± 1.82 | 35-40 | 0.96  ±0.01 | 164  ±0.55 | 227.8  ±0.66 | 470  ±0.71 | 2.54  ±0.01 | 0.63  ±0.01 | 16.41  ±0.01 |
| Chemical | 5.80  ±0.01 | 0.22  ±0.01 | 31.7± 0.85 | 15-30 | 0.81  ±0.02 | 171.2  ±0.37 | 237.4  ±0.68 | 551.2  ±0.37 | 3.058  ±0.03 | 0.634±  0.05 | 19.68  ±0.02 |

Table 3: The NPK (average) of vermicompost and cow dung manures applied to maize fields.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Manure** | **Nitrogen (%)** | **Phosphorus (%)** | **Pottassium (%)** | **C:N ratio** |
| Vermicompost | 1.92 | 2.22 | 1.08 | 14.09 |
| Cow dung | 1.04 | 0.78 | 0.15 | 50.24 |