Table 3- Summary of analysis of variance (ANOVA) for growth and biomass variables after 45 days of planting in a greenhouse

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variation source** | **GL** | **CR** | **CPA** | **MSR** | **MVR** | **MSPA** | **MVPA** | **BV/BS R** | **BV/BS PA** |
|  |  |  |  | **Medium square** | |  |  |  |
| Concentration | 5 | 10,62\* | 627,63\* | 4,56\* | 106,91\* | 10,85\* | 437,70\* | 27,41ns | 29,10ns |
| Repetitions | 3 |  |  |  |  |  |  |  |  |
| Error | 18 | 1,49 | 39,63 | 0,77 | 12,66 | 0,25 | 17,01 | 20,27 | 21,33 |
| Total | 23 |  |  |  |  |  |  |  |  |
| CV |  | 31,30 | 29,60 | 84,27 | 56,20 | 37,30 | 45,84 | 59,64 | 61,43 |

Legend: Root length (CR); aerial part length (CPA); dry root mass (MSR); green root mass (MVR); aerial part dry mass (MSPA); aerial part green mass (MVPA); green biomass / dry root biomass (BV / BS-R); and Green biomass / dry shoot biomass (BV / BS-PA). n.s = not significant and \* = significant at 5% probability. GL: degrees of freedom. CV: coefficient of variation

Table 4 - Summary of analysis of variance for leaf macro and micronutrient variables after 45 days of planting in a greenhouse

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variation source** | **GL** | **N** | **K** | **P** | **Ca** | **Mg** |
|  |  | **Medium square** | |  |
| Concentration | 5 | 18,28ns | 842,37\* | 7208218,9\* | 2934321,8ns | 2760121,2\* |
| Repetitions | 3 |  |  |  |  |  |
| Error | 18 | 28,25 | 19,78 | 864459 | 860462 | 49160 |
| Total | 23 |  |  |  |  |  |
| CV |  | 14,09 | 11,90 | 37,72 | 19,05 | 9,31 |
| **Variation source** | **GL** | **Cu** | **Fe** | **Mn** | **Zn** | |
|  | **Medium square** | |  |  |
| Concentration | 5 | 56,189 ns | 388989,5ns | 107866,3\* | 28935,2\* | |
| Repetition | 3 |  |  |  |  |  |
| Error | 18 | 17,69 | 193037 | 15713 | 478,81 | |
| Total | 23 |  |  |  |  |  |
| CV |  | 3679 | 62,19 | 22,68 | 17,08 | |

Legend: n.s = not significant and \* = significant at 5% probability. GL: degrees of freedom. CV: coefficient of variation

Table 5 - Summary of analysis of soil variance after 45 days of cultivation with sunflower in a greenhouse

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variation source** | **GL** | **pH**  (H2O) | **pH**  (KCl) | **Ca²++Mg²+** | **K+** | **Na+** | **H+ + Al³+** |
|  |  |  | **Medium square** | |  |  |
| Concentration | 5 | 0,356\* | 0,199\* | 0,057\* | 0,828\* | 0,576\* | 3,03 |
| Repetition | 3 |  |  |  |  |  |  |
| Error | 18 | 0,040 | 0,003 | 0,017 | 0,014 | 0,012 | 0,174 |
| Total | 23 |  |  |  |  |  |  |
| CV |  | 4,38 | 1,47 | 15,56 | 23,25 | 22,51 | 7,04 |
| **Variation source** | **GL** | **Al³+** | **P** | **C** | **N** |  | **C/N** |
|  |  | **Medium square** | |  |  |
| Concentration | 5 | 2,22\* | 164,77\* | 0,554 n.s. | 0,042\* |  | 0,366n.s. |
| Repetition | 3 |  |  |  |  |  |  |
| Error | 18 | 0,024 | 26,76 | 0,485 | 0,003 |  | 0,305 |
| Total | 23 |  |  |  |  |  |  |
| CV |  | 9,92 | 12,81 | 6,22 | 3,46 |  | 8,29 |

Legend: n.s = not significant and \* = significant at 5% probability. GL: degrees of freedom. CV: coefficient of variation

Table 7 - Summary of analysis of variance for soil fertility after 45 days of sunflower cultivation

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Mehlich Extraction | | |  |
| **Variation source** | **GL** | **Cu** | **Fe** | **Mn** | **Zn** | **Pb** |
| **Medium square** | | | | | | |
| Concentration | 5 | 0,02n.s. | 60,17\* | 4,55\* | 0,527\* | 0,0167n.s. |
| Repetition | 3 |  |  |  |  |  |
| Error | 18 | 0,008 | 3,76 | 1,62 | 0,091 | 0,023 |
| Total | 23 |  |  |  |  |  |
| CV |  | 8,82 | 5,01 | 13,88 | 19,21 | 5,28 |
|  |  |  |  | DTPA Extraction | |  |
| **Fonte de variação** | **GL** | **Cu** | **Fe** | **Mn** | **Zn** | **Pb** |
| **Medium square** | | | | | | |
| Concentration | 5 | 0,046\* | 157,6\* | 2,43n.s. | 0,38\* | 0,035n.s. |
| Repetition | 3 |  |  |  |  |  |
| Error | 18 | 0,006 | 20,32 | 0,94 | 0,031 | 0,047 |
| Total | 23 |  |  |  |  |  |
| CV |  | 9,88 | 6,34 | 16,17 | 18,68 | 7,039 |

Legend: n.s = not significant and \* = significant at 5% probability. GL: degrees of freedom. CV: coefficient of variation