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**SUPPLEMENTARY MATERIAL** **OPEN ACCESS**

# Calcium Phosphate as Nanofertilizer for Curly-Leafed Parsley Production

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## Appendix A:Anova table for growth and yield characteristics of curly-leafed parsley treated with foliar application of HAP NPs fertilizer

| Season 1 | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1st Harvest | | | | | | | | | | | | | | | | | | | | |
| | | Plant Height | | | | Plant Diameter | | | | Fresh Herb | | | | Dry Herb | | | | Oil Yield | | | |
| S.V. | df | MS | F | P-value | Sign. | MS | F | P-value | Sign. | MS | F | P-value | Sign. | MS | F | P-value | Sign. | MS | F | P-value | Sign. |
| Replications | 2 | 1.67 | 0.59 | 0.58 | ns | 6.30 | 0.90 | 0.44 | ns | 0.3150 | 0.24 | 0.79 | ns | 0.1380 | 0.28 | 0.76 | ns | 0.7140 | 0.13 | 0.88 | ns |
| Treatments | 4 | 43.83 | 15.47 | 0.00 | ** | 28.25 | 4.04 | 0.04 | * | 63.9310 | 48.47 | 0.00 | ** | 9.0480 | 18.47 | 0.00 | ** | 22.0970 | 4.13 | 0.04 | * |
| Error | 8 | 2.83 | | | | 7.00 | | | | 1.3190 | | | | 0.4900 | | | | 5.3450 | | | |
| 2nd Harvest | | | | | | | | | | | | | | | | | | | | |
| | | Plant Height | | | | Plant Diameter | | | | Fresh Herb | | | | Dry Herb | | | | Oil Yield | | | |
| S.V. | df | MS | F | P-value | Sign. | MS | F | P-value | Sign. | MS | F | P-value | Sign. | MS | F | P-value | Sign. | MS | F | P-value | Sign. |
| Reps | 2 | 0.867 | 0.27 | 0.77 | ns | 38.467 | 2.86 | 0.12 | ns | 2.5530 | 1.52 | 0.28 | ns | 0.1170 | 1.09 | 0.38 | ns | 3.3010 | 0.96 | 0.42 | ns |
| Treatments | 4 | 11.900 | 3.72 | 0.05 | * | 32.267 | 2.40 | 0.14 | ns | 13.5380 | 8.04 | 0.01 | ** | 2.2170 | 20.72 | 0.00 | ** | 12.2900 | 3.57 | 0.06 | * |
| Error | 8 | 3.200 | | | | 13.467 | | | | 1.6840 | | | | 0.1070 | | | | 3.4440 | | | |
| Season 2 | | | | | | | | | | | | | | | | | | | | |
| 1st Harvest | | | | | | | | | | | | | | | | | | | | |
| | | Plant Height | | | | Plant Diameter | | | | Fresh Herb | | | | Dry Herb | | | | Oil Yield | | | |
| S.V. | df | MS | F | P-value | Sign. | MS | F | P-value | Sign. | MS | F | P-value | Sign. | MS | F | P-value | Sign. | MS | F | P-value | Sign. |
| Reps | 2 | 10.400 | 1.56 | 0.27 | ns | 0.800 | 0.05 | 0.95 | ns | 2.1780 | 1.60 | 0.26 | ns | 0.2940 | 1.81 | 0.22 | ns | 0.8590 | 0.44 | 0.66 | ns |
| Treatments | 4 | 84.600 | 12.72 | 0.00 | ** | 3.600 | 0.22 | 0.92 | ns | 44.8540 | 33.03 | 0.00 | ** | 6.3750 | 39.35 | 0.00 | ** | 23.6330 | 12.04 | 0.00 | ** |
| Error | 8 | 6.650 | | | | 16.300 | | | | 1.3580 | | | | 0.1620 | | | | 1.9630 | | | |
| 2nd Harvest | | | | | | | | | | | | | | | | | | | | |
| | | Plant Height | | | | Plant Diameter | | | | Fresh Herb | | | | Dry Herb | | | | Oil Yield | | | |
| S.V. | df | MS | F-statistic | P-value | Sign. | MS | F | P-value | Sign. | MS | F | P-value | Sign. | MS | F | P-value | Sign. | MS | F | P-value | Sign. |
| Reps | 2 | 1.87 | 0.48 | 0.63 | ns | 11.27 | 0.37 | 0.70 | ns | 0.5420 | 0.82 | 0.47 | ns | 0.0980 | 0.19 | 0.83 | ns | 0.5560 | 0.52 | 0.62 | ns |
| Treatments | 4 | 16.57 | 4.28 | 0.04 | * | 55.07 | 1.79 | 0.22 | ns | 12.8370 | 19.48 | 0.00 | ** | 2.088 | 4.09 | 0.04 | * | 7.8710 | 7.31 | 0.01 | ** |
| Error | 8 | 3.87 | | | | 30.77 | | | | 0.6590 | | | | 0.5100 | | | | 1.0770 | | | |

S.V: Source of variation MS: Mean square df:Degree of freedom Sign: significant difference *$P < 0.05$ **$P < 0.01$

**Appendix B: Anova table for Anatomical measurements (µm) of leaflet lamina and petiole of curly leafed parsley treated with foliar application of HAP NPs fertilizer**

| S.V. | df | Upper Epidermis | | Lamina Thickness | | Palisade T. Thickness | |
|---|---|---|---|---|---|---|---|
| | | MS | P-value | MS | P-value | MS | P-value |
| Reps | 2 | 0.07500 | | 2.42900 | 0.29590 | 0.29400 | 0.04960 |
| Treatments | 4 | 186.91200 | 0.00000 | 4454.24700 | 0.00000 | 2948.03100 | 0.00000 |
| Error | 8 | 0.26200 | | 1.70600 | | 0.06600 | |
| | | Spongy T. thickness | | Vascular bundle thickness | | Xylem thickness | |
| S.V. | df | MS | P-value | MS | P-value | MS | P-value |
| Reps | 2 | 0.10100 | 0.40410 | 0.05600 | | 0.06500 | |
| Treatments | 4 | 3705.06100 | 0.00000 | 1178.39500 | 0.00000 | 3589.09900 | 0.00000 |
| Error | 8 | 0.09900 | | 0.11600 | | 0.06800 | |
| | | Phloem thickness | | Gland diameter | | Main vein thickness | |
| S.V. | df | MS | P-value | MS | P-value | MS | P-value |
| Reps | 2 | 0.07300 | 0.23060 | 0.03300 | 0.39250 | 0.04200 | 0.30450 |
| Treatments | 4 | 701.67000 | 0.00000 | 631.61900 | 0.00000 | 16542.41100 | 0.00000 |
| Error | 8 | 0.04100 | | 0.03100 | | 0.03000 | |
| | | Lower epidermis | | Epidermis thickness | | Collenchyma thickness | |
| S.V. | df | MS | P-value | MS | P-value | MS | P-value |
| Reps | 2 | 0.01400 | | 0.00900 | | 0.05300 | |
| Treatments | 4 | 242.95200 | 0.00000 | 29.88300 | 0.00000 | 670.30300 | 0.00000 |
| Error | 8 | 0.01500 | | 0.05000 | | 0.63300 | |
| | | Parenchyma thickness | | Xylem thickness | | Phloem thickness | |
| S.V. | df | MS | P-value | MS | P-value | MS | P-value |
| Reps | 2 | 0.80600 | 0.03890 | 0.15300 | | 0.20900 | |
| Treatments | 4 | 7434.70500 | 0.00000 | 4058.29600 | 0.00000 | 1523.81800 | 0.00000 |
| Error | 8 | 0.16100 | | 0.61600 | | 0.41400 | |
| | | Pith diameter | | Cross section diameter | | | |
| S.V. | df | MS | P-value | MS | P-value | | |
| Reps | 2 | 0.18900 | 0.39330 | 3.68300 | 0.22230 | | |
| Treatments | 4 | 132306.27200 | 0.00000 | 182137.26200 | 0.00000 | | |
| Error | 8 | 0.18000 | | 2.01800 | | | |

S.V: Source of variation MS: Mean square df:Degree of freedom

**DISCLAIMER:** Please note that this article is currently in the 'Early view' stage and is not the final 'Version of Record'. While it has been accepted, copy-edited, and formatted, however, it is still undergoing proofreading and corrections by the authors. Therefore, the text may still change before the final publication. Although 'Early view' may not have all bibliographic details available, the DOI and the year of online publication can still be used to cite them. The article title, DOI, publication year, and author(s) should all be included in the citation format. Once the 'Final Version of Record' becomes available the 'Early view' will be replaced by that.