**Supplementary Table S1. Analysis variance of germination (from 1. to 5. days), shoot and root length (from 2. till 5. days) under control and high voltage electrical discharge (HVED) treatment. Mean squares followed by asterisks (*) are significantly different (P<0.05). Analysis included five repetitions for germination, shoot, and root length.**

| Source of variation | Df | Shoot | Root | Source of variation | Df | Germination |
|---|---|---|---|---|---|---|
| Treatment (T) | 1 | 17.3* | 39.4* | Treatment (T) | 1 | 1109.4* |
| Day (D) | 3 | 855.4* | 1089.3* | Day (D) | 2 | 700.5* |
| (T*D) | 3 | 2.7* | 1.5* | (T*D) | 2 | 673.4* |
| Error: 396 | 19 | 0 | 1 | Error: 54 | 52 | 1 |

* significant at P≤0.05

**Supplementary Table S2. Analysis variance of hormone accumulation in shoot under control and high voltage electrical discharge (HVED) treatment for 2nd and 5th day. Mean squares followed by asterisks (*) are significantly different (P<0.05). Analysis included three-five repetitions.**

| Source of variation | Df | ABA | PA | *d*HPA | JA | JA-Le_Ile | IAA | GA4 | GA20 | GA3 | GA1 | GA8 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Treatment (T) | 1 | 0.0ns | 0.0ns | 0.0ns | 24921.8* | 1114.3* | 0.0ns | 0.0ns | 1.4ns | 0.0ns | 0.3ns | 0.0ns |
| Day (D) | 1 | 2.5* | 0.6* | 0.2* | 77958.4* | 1076.8* | 114.1* | 6.1* | 180.5* | 4.3* | 2.1* | 185.1* |
| (T*D) | 1 | 0.0ns | 0.0ns | 0.0ns | 520.2ns | 0.8ns | 0.1ns | 0.0ns | 1.0ns | 0.0ns | 0.1ns | 0.2ns |
| Error | 9,13,14 | 0.1 | 0.0 | 0.0 | 1398.7 | 85.3 | 0.4 | 0.0 | 0.4 | 0.0 | 0.1 | 0.1 |

* significant at P≤0.05; ns-not significant

9(GA1, JA); 13( ABA, *d*HPA, GA20); 14(PA, GA4, GA3; GA8, JA-Le-Ile, IAA)

**Supplementary Table S3. Analysis variance of polyphenol accumulation in shoot under control and high voltage electrical discharge (HVED) treatment for 2nd and 5th day. Mean squares followed by asterisks (*) are significantly different (P<0.05). Analysis included three-five repetitions.**

| Source of variation | Df | CA | *p*-CA | CFA | FA | *p*HBA | 3,4-*d*HBA | 2,6-*d*HBA | SA | BA |
|---|---|---|---|---|---|---|---|---|---|---|
| Treatment (T) | 1 | 20.6* | 1518.4* | 119.3* | 881843.7ns | 164.7ns | 18.8ns | 0.6ns | 117.2ns | 11589.4* |
| Day (D) | 1 | 1216.9* | 397.1ns | 660.7* | 104485972.6* | 68040.0* | 3758.4* | 6652.6* | 10700.4* | 1037071.4* |
| (T*D) | 1 | 42.5* | 268.2ns | 3.2ns | 631379.2ns | 2.7ns | 7.8ns | 18.1ns | 62.0ns | 44251.5* |
| Error | 11,12, 13,14 | 2.6 | 141.1 | 17.9 | 263890.6 | 512.4 | 14.2 | 7.1 | 70.4 | 772.7 |

* significant at P≤0.05; ns-not significant

11(FA, BA); 12(2,6-*d*HBA, SA); 13(CA, *p*-CA.); 14(*p*HBA, 3,4-*d*HBA, CFA)

**Supplementary Table S4. Analysis variance of hormone accumulation in root under control and high voltage electrical discharge (HVED) treatment for 2nd and 5th day. Mean squares followed by asterisks (*) are significantly different (P<0.05). Analysis included three-five repetitions.**

| Source of variation | Df | ABA | PA | *d*HPA | GA1 | GA8 | JA-Le-Ile | IAA | JA |
|---|---|---|---|---|---|---|---|---|---|
| Treatment (T) | 1 | 1.8* | 0.1* | 0.1* | 1.0* | 0.0ns | 239.0ns | 3.7ns | 100.2ns |
| Day (D) | 1 | 69.9* | 1.9* | 10.0* | 2.5* | 5.0* | 35356.9* | 1.1ns | 1095869.4* |
| (T*D) | 1 | 2.8* | 0.1* | 0.0ns | 2.6* | 0.0ns | 776.5ns | 1.3ns | 3615.4ns |
| Error | 9,11,14 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 755.5 | 2.7 | 4175.9 |

* significant at P≤0.05; ns-not significant

9(GA1); 11(ABA, *d*HPA, JA); 14(PA, GA8, JA-Le-Ile, IAA)

**Supplementary Table S5. Analysis variance of polyphenol accumulation in root under control and high voltage electrical discharge (HVED) treatment for 2nd and 5th day. Mean squares followed by asterisks (*) are significantly different (P<0.05). Analysis included three-five repetitions.**

| Source of variation | Df | CA | *p*-CA | CFA | FA | *p*HBA | 3,4-*d*HBA | 2,6-*d*HBA | SA | BA |
|---|---|---|---|---|---|---|---|---|---|---|
| Treatment (T) | 1 | 147.0ns | 5170.3ns | 0.0ns | 31269.4* | 2079.4* | 21.2ns | 45.4ns | 66.8ns | 213490.0* |
| Day (D) | 1 | 45811.2* | 7.1ns | 0.9* | 425014.9* | 370.5ns | 79.4* | 60.6* | 188.8* | 194969.4* |
| (T*D) | 1 | 69.5ns | 4.8ns | 0.1ns | 20064.9* | 606.3ns | 167.5* | 5.9ns | 74.7ns | 104573.9* |
| Error | 10,11,13,14 | 116.9 | 1167.4 | 0.1 | 1730.1 | 177.2 | 15.5 | 11.1 | 19.8 | 3405.7 |

* significant at P≤0.05; ns-not significant

10(FA); 11(BA, CA, *p*-CA); 13(3,4-*d*HBA, SA); 14(CFA, *p*HBA, 2,6-*d*HBA)

**Supplementary Table S6. Amount of hormones in shoot and root under control (0) and high electrical voltage discharge (HVED) treatment (H) on the 2nd and 5th day. Values represent means ± standard deviation. Analysis included three-five repetitions.**

| Treatment | Hormone | Shoot (2nd day) | Shoot (5th day) | Root (2nd day) | Root (5th day) |
|---|---|---|---|---|---|
| 0 | ABA | 4.32 ± 0.4 | 3.48 ± 0.2 | 6.52 ± 0.4 | 2.98 ± 0.3 |
| 0 | PA | 0.88 ± 0.1 | 0.44 ± 0.1 | 0.51 ± 0.1 | 0 |
| 0 | *d*HPA | 0.26 ± 0.0 | 0 | 1.87 ± 0.1 | 0.27 ± 0.0 |
| 0 | GA4 | 1.14 ± 0.2 | 0 | 0 | 0 |
| 0 | GA20 | 8.11 ± 0.4 | 0.65 ± 0.2 | 0 | 0 |
| 0 | GA3 | 1.53 ± 0.2 | 0.62 ± 0.3 | 0 | 0 |
| 0 | GA1 | 10.06 ± 0.2 | 9.11 ± 0.2 | 7.53 ± 0.3 | 5.75 ± 0.1 |
| 0 | GA8 | 7.46 ± 0.3 | 1.12 ± 0.4 | 1.05 ± 0.2 | 0 |
| 0 | JA | 321.5 ± 9.3 | 152.67 ± 30.4 | 759.33 ± 89.4 | 183.25 ± 29.0 |
| 0 | JA_Ie_Ile | 24.36 ± 4.7 | 8.94 ± 5.4 | 121.55 ± 23.3 | 19.14 ± 7.0 |
| 0 | IAA | 13 ± 0.8 | 7.66 ± 0.3 | 19.38 ± 2.5 | 18.34 ± 1.5 |
| H | ABA | 4.22 ± 0.2 | 3.49 ± 0.1 | 8.11 ± 0.6 | 2.82 ± 0.4 |
| H | PA | 0.86 ± 0.1 | 0.53 ± 0.0 | 0.80 ± 0.1 | 0 |
| H | *d*HPA | 0.21 ± 0.0 | 0 | 1.74 ± 0.1 | 0 |
| H | GA4 | 1.25 ±1.2 | 0 | 0 | 0 |
| H | GA20 | 6.42 ± 0.8 | 0.57 ± 0.1 | 0 | 0 |
| H | GA3 | 1.52 ± 0.2 | 0.42 ± 0.1 | 0 | 0 |
| H | GA1 | 10.22 ± 0.4 | 9.56 ± 0.3 | 6.06 ± 0.3 | 6.08 ± 0.1 |
| H | GA8 | 7.67 ± 0.4 | 0.86 ± 0.1 | 1.06 ± 0.1 | 0 |
| H | JA | 397 ± 7.9 | 253.67 ± 25.5 | 733.25 ± 74.6 | 219.75 ± 30.1 |
| H | JA_Ie_Ile | 40.92 ± 14.6 | 24.63 ± 8.2 | 101 ± 46.5 | 25.03 ± 6.1 |
| H | IAA | 12.74 ± 0.7 | 7.77 ± 0.1 | 19.74 ± 1.3 | 19.8 ± 1.2 |

*Abbreviations*: Abscisic acid (ABA); phaseic acid (PA); dihydrophaseic acid (*d*HPA); gibberellic acid (GAs) derivates; jasmonic acid (JA); jasmonoyl-leucine-isoleucine (JA_Le_Ile); auxin (IAA).

**Supplementary Table S7. Amount of polyphenols in shoot and root under control (0) and high electrical voltage discharge (HVED) treatment (H) on the 2nd and 5th day. Values represent means ± standard deviation. Analysis included three-five repetitions.**

| Treatment | Polyphenols | Shoot (2nd day) | Shoot (5th day) | Root (2nd day) | Root (5th day) |
|---|---|---|---|---|---|
| 0 | CA | 17.14 ± 0.7 | 3.08 ± 0.9 | 135.33 ± 23.7 | 17.84 ± 3.9 |
| 0 | *p*-CA | 103.56 ± 14.1 | 101.8 ± 11.2 | 121.2 ± 48.0 | 108.5 ± 17.5 |
| 0 | CFA | 31.24 ± 1.5 | 44.52 ± 2.6 | 1.92 ± 0.5 | 1.64 ± 0.3 |
| 0 | FA | 863 ± 17.3 | 5786.67 ± 398.0 | 562.33 ± 8.9 | 286.75± 57.7 |
| 0 | *p*HBA | 296.8 ± 19.0 | 422 ± 23.3 | 78.35 ± 9.5 | 80.9 ± 14.8 |
| 0 | 3,4-*d*HBA | 44.34 ± 4.9 | 16.08 ± 3.3 | 25.43 ± 3.4 | 23.46 ± 5.6 |
| 0 | 2,6-*d*HBA | 1.82 ± 0.7 | 45.44 ± 3.5 | 7.02 ± 0.9 | 4.48 ± 0.9 |
| 0 | SA | 7.12 ± 1.8 | 63.7 ± 9.9 | 14.73 ± 0.8 | 17.26 ± 3.9 |
| 0 | BA | 581.5 ± 20.7 | 161 ± 36.1 | 255.33 ± 39.7 | 296 ± 72.4 |
| H | CA | 22.62 ± 2.6 | 2.09 ± 0.7 | 137.33 ± 4.6 | 28.65 ± 4.4 |
| H | *p*-CA | 131 ± 12.7 | 113 ± 5.0 | 158 ± 48.7 | 157.75 ± 12.9 |
| H | CFA | 37.38 ± 3.8 | 48.93 ± 8.8 | 2.12 ± 0.2 | 1.49 ± 0.4 |
| H | FA | 939.33 ± 4.9 | 6760 ± 586.9 | 734.33 ± 47.8 | 305.75 ± 29.4 |
| H | *p*HBA | 302.2 ± 26.9 | 429 ± 18.1 | 111.66 ± 11.1 | 90.85 ± 7.3 |
| H | 3,4-*d*HBA | 43.6 ± 3.8 | 12.63 ± 0.6 | 16.87 ± 0.6 | 27.53 ± 3.7 |
| H | 2,6-*d*HBA | 3.57 ± 1.2 | 42.87 ± 3.9 | 11.36 ± 6.0 | 6.52 ± 1.4 |
| H | SA | 16.62 ± 1.7 | 65.2 ± 14.7 | 14.5 ± 3.3 | 25.6 ± 2.8 |
| H | BA | 747 ± 32.3 | 107.55 ± 9.5 | 306.67 ± 50.9 | 704.75 ± 52.3 |

*Abbreviations*: Cinnamic acid (CA); *p*-coumaric acid (*p*-CA); ferulic acid (FA); caffeic acid (CFA); *p*-hydroxybenzoic acid (*p*HBA); 3,4-dihydroxybenzoic acid (3,4-*d*HBA); 2,6-dyhydroxybenzoic acid (2,6-*d*HBA); salicylic acid (SA) and benzoic acid (BA).

**Supplementary Table S8. Factor loadings of shoot hormones and polyphenols under control and high voltage electrical discharge (HVED) treatment..**

| Variable | PC1 | PC2 | PC3 |
|---|---|---|---|
| CA | 0.052 | 0.003 | 0.066 |
| IAA | 0.054 | 0.001 | 0.004 |
| BA | 0.052 | 0.002 | 0.083 |
| *p*HBA | 0.053 | 0.003 | 0.000 |
| SA | 0.052 | 0.008 | 0.014 |
| 3,4-*d*HBA | 0.053 | 0.004 | 0.004 |
| 2,6-*d*HBA | 0.054 | 0.000 | 0.008 |
| *p*-CA | 0.012 | 0.229 | 0.211 |
| CFA | 0.044 | 0.062 | 0.005 |
| FA | 0.040 | 0.045 | 0.280 |
| JA | 0.035 | 0.103 | 0.108 |
| ABA | 0.053 | 0.004 | 0.012 |
| PA | 0.053 | 0.001 | 0.054 |
| *d*HPA | 0.052 | 0.006 | 0.020 |
| JA-LE-ILE | 0.029 | 0.153 | 0.001 |
| GA 4 | 0.054 | 0.000 | 0.003 |
| GA 20 | 0.052 | 0.008 | 0.017 |
| GA 3 | 0.052 | 0.007 | 0.022 |
| GA 1 | 0.047 | 0.030 | 0.085 |
| GA 8 | 0.054 | 0.001 | 0.002 |
| Germination ($2^{nd}$ day) | 0.000 | 0.330 | 0.000 |
| Shoot lenght | 0.054 | 0.002 | 0.000 |
| Explained variance (eigenvalue) | 18.54 | 3.03 | 0.43 |
| Proportion of total variance (%) | 84.29 | 13.76 | 1.95 |
| Cumulative variance (%) | 84.29 | 98.05 | 100.00 |

PC1-3 (principal components)

*CA (cinnamic a.); *p*-CA (*p*-coumaric a.); CFA (caffeic a.); FA (ferulic a.); PA (phaseic a.); ABA (abscisic acid); PA (phaseic acid); *d*HPA (dihydrophaseic acid); GA (gibberelins 1,3,4,8,20); JA (jasmonic acid); JA-Le_Ile (jasmonoyl-leucine-isoleucine); IAA (auxin); *p*HBA (*p*-hydroxybenzoic acid); 3,4-*d*HBA (3,4-dihydroxybenzoic acid); 2,6-*d*HBA (2,6-dihydroxybenzoic acid); SA (salicylic acid); BA (benzoic acid)

**Supplementary Table S9. Factor loadings of root hormones and polyphenols under control and high voltage electrical discharge (HVED) treatment.**

| Variable | PC1 | PC2 | PC3 |
|---|---|---|---|
| CA | 1.00 | -0.01 | 0.01 |
| IAA | 1.00 | 0.00 | 0.00 |
| BA | 0.91 | 0.15 | 0.38 |
| *p*HBA | -1.00 | 0.09 | 0.02 |
| SA | -1.00 | 0.03 | -0.02 |
| 3,4-*d*HBA | 0.71 | -0.70 | -0.09 |
| 2,6-*d*HBA | -0.99 | 0.07 | 0.09 |
| *p*-CA | 0.78 | 0.61 | 0.14 |
| CFA | -1.00 | 0.06 | -0.06 |
| FA | -0.99 | 0.10 | -0.09 |
| JA | 0.98 | 0.04 | -0.18 |
| ABA | 0.96 | 0.23 | 0.14 |
| PA | 0.65 | 0.74 | 0.16 |
| *d*HPA | 1.00 | -0.07 | -0.03 |
| JA-LE-ILE | 0.99 | -0.01 | -0.12 |
| GA 20 | -1.00 | -0.03 | 0.09 |
| GA 3 | -0.97 | -0.11 | 0.23 |
| GA 1 | 0.66 | -0.47 | -0.59 |
| GA 8 | 0.34 | -0.44 | 0.83 |
| Germination ($2^{nd}$ day) | -0.03 | 0.97 | -0.22 |
| Root lenght | -1.00 | 0.07 | -0.04 |
| Explained variance (eigenvalue) | 16.66 | 2.91 | 1.43 |
| Proportion of total variance (%) | 79.34 | 13.85 | 6.81 |
| Cumulative variance (%) | 79.34 | 93.19 | 100.00 |

PC1-3 (principal components)

*CA (cinnamic a.); *p*-CA (*p*-coumaric a.); CFA (caffeic a.); FA (ferulic a.); PA (phaseic a.); ABA (abscisic acid); PA (phaseic acid); *d*HPA (dihydrophaseic acid); GA (gibberelins 1,3,4,8,20); JA (jasmonic acid); JA-Le_Ile (jasmonoyl-leucine-isoleucine); IAA (auxin); *p*HBA (*p*-hydroxybenzoic acid); 3,4-*d*HBA (3,4-dihydroxybenzoic acid); 2,6-*d*HBA (2,6-dihydroxybenzoic acid); SA (salicylic acid); BA (benzoic acid)