Table S1. List of metabolites obtained from *R. alkalitolerans* in hpH conditions in all the three light intensities of 30, 250 and 500 µmol photons m-2s-1.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Metabolites** | **Abbreviation** | **Chemical**  **nature of metabolite** | **hpH 30** | **SE** | **hpH 250** | **SE** |  | **Significance** | **Log2 Fold Change** |
| Propanoic acid | PrA | Carboxylic acid | 91.0913867 | 5.207412009 | 102.1553625 | 11.81654843 | 0.475006414 | NS | 0.165378389 |
| Lactic Acid | LA | Carboxylic acid | 123.8631609 | 3.590397248 | 273.8249992 | 12.79222615 | 0.003823706 | Significant | 1.144506998 |
| Glycolic acid | GcA | Carboxylic acid | 2.610192144 | 0.122130901 | 3.663538603 | 0.13426768 | 0.04566126 | Significant | 0.489081806 |
| 3-Hydroxybutyric acid | 3HBA | Carboxylic acid | 216.968284 | 11.2650543 | 237.6849688 | 12.35490795 | 0.037174348 | Significant | 0.131566502 |
| Butanedioic acid | BdA | Dicarboxylic acid | 129.6632583 | 11.84651454 | 198.5815584 | 9.543500075 | 0.012731085 | Significant | 0.614961919 |
| Methylsuccinic acid | MSA | Dicarboxylic acid | 11.59802892 | 0.56001692 | 25.69577997 | 0.842239353 | 0.000423736 | Significant | 1.147651804 |
| Pentanedioic acid | PdA | Dicarboxylic acid | 65.76224232 | 0.650474306 | 124.0608817 | 5.834062337 | 0.011917446 | Significant | 0.915716886 |
| Malonic acid | MaA | Dicarboxylic acid | 24.59411568 | 3.141783264 | 19.17719001 | 2.355259758 | 0.123212137 | N | -0.358921841 |
| Citric acid | CiA | Tricarboxylic acid | 30.35809783 | 0.826092704 | 72.56683811 | 1.614925938 | 0.002980754 | Significant | 1.257229013 |
| Stearic acid | SA | Fatty acid | 91.5875893 | 7.163875363 | 86.53369153 | 7.416029157 | 0.728014678 | NS | -0.081890168 |
| 9-Octadecenoic acid | 9-OA | Fatty acid | 505.9041403 | 21.63568164 | 610.770201 | 27.33000974 | 0.159602114 | NS | 0.27176563 |
| 2,3-Butanediol | BTD | Alcohol | 1.518696248 | 0.252164083 | 3.736371703 | 0.947277336 | 0.17661881 | NS | 1.298804637 |
| Silanol | Sil | Alcohol | 2334.670055 | 14.91533013 | 3100.873178 | 237.5384692 | 0.081264328 | NS | 0.409455846 |
| Glycerol | Gly | Alcohol | 215.9957266 | 3.347827847 | 247.0478362 | 17.02056671 | 0.218282946 | NS | 0.19378765 |
| Phytol | Phy | Diterpene alcohol | 23.45507145 | 1.124577598 | 14.49096113 | 1.104643162 | 0.015701575 | Significant | -0.69474661 |
| L-Alanine | L-Aln | Amino acid | 135.3465557 | 7.207108015 | 184.1567402 | 11.49949542 | 0.042377015 | Significant | 0.444276027 |
| Glycine | Gln | Amino acid | 23.42871271 | 0.659980752 | 59.92358969 | 2.774146659 | 0.007871356 | Significant | 1.354846363 |
| L-Valine | L-Val | Amino acid | 5.534428438 | 0.215205027 | 8.284947664 | 0.73377071 | 0.049233694 | Significant | 0.582058252 |
| L-Proline | L-Pro | Amino acid | 3.977952121 | 0.354586695 | 9.390700316 | 0.20990556 | 0.004715333 | Significant | 1.23920684 |
| .beta.-Alanine | β- Ala | Amino acid | 1.848786459 | 0.930719849 | 21.80555347 | 0.859909586 | 0.001855859 | Significant | 3.560045106 |
| Tromethamine | Tma | Amino acid | 4892.035051 | 158.7392743 | 3234.190567 | 283.0276946 | 0.033363366 | Significant | -0.597030052 |
| L-5-Oxoproline | L-5-Oxp | Amino acid derivative | 81.25174932 | 2.588916533 | 136.3764752 | 3.238694005 | 0.010436335 | Significant | 0.747124024 |
| L-Glutamic acid | L-Glu | Amino acid | 339.9885595 | 8.726419966 | 875.7598146 | 55.30074133 | 0.0126651 | Significant | 1.36504905 |
| Putrescine | Put | Diamine | 49.00473218 | 2.21508233 | 200.8086955 | 20.21033141 | 0.014550412 | Significant | 2.034828767 |
| d-Erythrotetrofuranose | d-ETF | Sugar | 2.741837866 | 0.450079471 | 4.689306954 | 0.172928406 | 0.088898004 | NS | 0.774231456 |
| 1-Monopalmitin | 1- MoP | Ester | 38.2705933 | 2.055944398 | 32.18880661 | 0.917919575 | 0.141194954 | NS | -0.249677177 |
| Glycerol monostearate | GMs | Ester | 52.22537923 | 2.134897462 | 44.8542724 | 1.888576675 | 0.120538644 | NS | -0.219505654 |
| Phosphoric acid | PA | Ions | 340.5430401 | 39.8812146 | 604.371369 | 41.84983269 | 0.042821 | Significant | 0.82759817 |
| Ethylphosphonic acid | ESA | Ions | 26.45571335 | 14.53935975 | 22.25611112 | 11.4760782 | 0.389493227 | NS | -0.249377791 |
| 9H-Purine | 9H-Pur | Nucleotide | 4.467006479 | 0.480807483 | 56.27361225 | 0.408081047 | 6.15902E-05 | Significant | 3.655078322 |
|  | | | | | | | | | |
| **Metabolites** | **Abbreviation** | **Chemical**  **nature of metabolite** | **hpH 30** | **SE** | **hpH 500** | **SE** | **p-values** | **Significance** | **Log2 Fold Change** |
| Propanoic acid | PrA | Carboxylic acid | 91.0913867 | 5.207412009 | 250.1156564 | 146.218144 | 0.402393017 | NS | 1.457208819 |
| Lactic Acid | LA | Carboxylic acid | 123.8631609 | 3.590397248 | 593.9974286 | 284.2540275 | 0.241313168 | NS | 2.261709518 |
| Glycolic acid | GcA | Carboxylic acid | 2.610192144 | 0.122130901 | 245.1215134 | 31.92910549 | 0.01683992 | Significant | 6.553197288 |
| 3-Hydroxybutyric acid | 3HBA | Carboxylic acid | 216.968284 | 11.2650543 | 177.8755341 | 89.35222205 | 0.704840519 | NS | -0.286616079 |
| Butanedioic acid | BdA | Dicarboxylic acid | 129.6632583 | 11.84651454 | 361.7399962 | 176.5868151 | 0.295219078 | NS | 1.480183388 |
| Methylsuccinic acid | MSA | Dicarboxylic acid | 11.59802892 | 0.56001692 | 33.44611871 | 16.16976204 | 0.311256097 | NS | 1.527959161 |
| Pentanedioic acid | PdA | Dicarboxylic acid | 65.76224232 | 0.650474306 | 256.2861408 | 117.7668357 | 0.248817202 | NS | 1.962424067 |
| Malonic acid | MaA | Dicarboxylic acid | 24.59411568 | 3.141783264 | 63.30631463 | 32.26239288 | 0.371537461 | NS | 1.36403623 |
| Citric acid | CiA | Tricarboxylic acid | 30.35809783 | 0.826092704 | 87.48007949 | 37.28220113 | 0.265961264 | NS | 1.526873134 |
| Stearic acid | SA | Fatty acid | 91.5875893 | 7.163875363 | 53.29417451 | 33.32248119 | 0.29703369 | NS | -0.781174274 |
| 9-Octadecenoic acid | 9-OA | Fatty acid | 505.9041403 | 21.63568164 | 444.6081599 | 319.107959 | 0.863228254 | NS | -0.18632962 |
| 2,3-Butanediol | BTD | Alcohol | 1.518696248 | 0.252164083 | 9.052325444 | 5.068279832 | 0.273951445 | NS | 2.575455105 |
| Silanol | Sil | Alcohol | 2334.670055 | 14.91533013 | 10840.2096 | 5243.227929 | 0.245815952 | NS | 2.21510207 |
| Glycerol | Gly | Alcohol | 215.9957266 | 3.347827847 | 20.93462865 | 8.366833408 | 0.001929346 | Significant | -3.367039537 |
| Phytol | Phy | Diterpene alcohol | 23.45507145 | 1.124577598 | 9.193239846 | 3.445155457 | 0.045981845 | Significant | -1.351254611 |
| L-Alanine | L-Aln | Amino acid | 135.3465557 | 7.207108015 | 40.42353576 | 3.367168416 | 0.004348443 | Significant | -1.743390753 |
| Glycine | Gln | Amino acid | 23.42871271 | 0.659980752 | 40.42353576 | 3.367168416 | 0.050495846 | NS | 0.786917829 |
| L-Valine | L-Val | Amino acid | 5.534428438 | 0.215205027 | 47.00993587 | 39.984291 | 0.408167715 | NS | 3.086459475 |
| L-Proline | L-Pro | Amino acid | 3.977952121 | 0.354586695 | 10.66644266 | 1.0801758 | 0.042033362 | Significant | 1.42298129 |
| beta.-Alanine | β- Ala | Amino acid | 1.848786459 | 0.930719849 | 5.331350846 | 4.341603875 | 0.493400724 | NS | 1.527922528 |
| Tromethamine | Tma | Amino acid | 4892.035051 | 158.7392743 | 11742.38532 | 918.5024297 | 0.01543393 | Significant | 1.263218858 |
| L-5-Oxoproline | L-5-Oxp | Amino acid derivative | 81.25174932 | 2.588916533 | 275.3211302 | 58.87243826 | 0.07856453 | NS | 1.760644558 |
| L-Glutamic acid | L-Glu | Amino acid | 339.9885595 | 8.726419966 | 3338.890333 | 1257.698384 | 0.139376861 | NS | 3.295810602 |
| Putrescine | Put | Diamine | 49.00473218 | 2.21508233 | 36.80619921 | 18.56584779 | 0.592992241 | NS | -0.412972293 |
| d-Erythrotetrofuranose | d-ETF | Sugar | 2.741837866 | 0.450079471 | 10.4294788 | 4.602901565 | 0.205592019 | NS | 1.927451895 |
| 1-Monopalmitin | 1- MoP | Ester | 38.2705933 | 2.055944398 | 31.16227538 | 15.44789908 | 0.656609775 | NS | -0.296435689 |
| Glycerol monostearate | GMs | Ester | 52.22537923 | 2.134897462 | 37.0008913 | 23.21549311 | 0.547272538 | NS | -0.49719104 |
| Phosphoric acid | PA | Ions | 340.5430401 | 39.8812146 | 163.4654989 | 85.15016502 | 0.087770237 | NS | -1.058850975 |
| Ethylphosphonic acid | ESA | Ions | 26.45571335 | 14.53935975 | 508.6284775 | 308.4015534 | 0.26408753 | NS | 4.264961015 |
| 9H-Purine | 9H-Pur | Nucleotide | 4.467006479 | 0.480807483 | 34.4840929 | 6.788043253 | 0.041627344 | Significant | 2.948550765 |