**S4 Table. 15N enrichment (atom%) in excess of natural abundance in mycorrhizal root tips harvested in June and August (6 and 48 hours after isotope labelling each) and in September (3 months after isotope labelling).**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | NW | | SW | | Two-Way-ANOVA | | |
| N form | mean | SE | mean | SE |  | p | F |
| **Glutamine** |  |  |  |  |  |  |  |
| **June\_6h** | 0.0166 | 0.0022 | 0.0018 | 0.0003 | Exposure | 0.000 | 258 |
| **June\_48h** | 0.0575 | 0.0166 | 0.0048 | 0.0030 | Time | 0.000 | 274.9 |
| **August\_6h** | 0.0266 | 0.0113 | 0.0052 | 0.0014 | Interactions | 0.000 | 147.1 |
| **August\_48h** | 0.0491 | 0.0157 | 0.0259 | 0.0111 |  |  |  |
| **September\_3 months** | 0.0690 | 0.0076 | 0.0610 | 0.0085 |  |  |  |
| **Ammonium** |  |  |  |  |  |  |  |
| **June\_6h** | 0.1586 | 0.0432 | 0.2157 | 0.0634 | Exposure | 0.049 | 4.1 |
| **June\_48h** | 0.4825 | 0.0847 | 0.3964 | 0.0624 | Time | 0.000 | 11.6 |
| **August\_6h** | 0.2371 | 0.0668 | 0.0833 | 0.0437 | Interactions | 0.534 | 0.8 |
| **August\_48h** | 0.5961 | 0.1149 | 0.4223 | 0.1737 |  |  |  |
| **September\_3 months** | 0.7681 | 0.1160 | 0.5523 | 0.0894 |  |  |  |
| **Nitrate** |  |  |  |  |  |  |  |
| **June\_6h** | 0.0648 | 0.0252 | 0.0551 | 0.0136 | Exposure | 0.005 | 8.8 |
| **June\_48h** | 0.2155 | 0.0546 | 0.1027 | 0.0327 | Time | 0.010 | 3.7 |
| **August\_6h** | 0.0960 | 0.0264 | 0.0339 | 0.0085 | Interactions | 0.269 | 1.3 |
| **August\_48h** | 0.2387 | 0.0790 | 0.0621 | 0.0161 |  |  |  |
| **September\_3 months** | 0.1871 | 0.0445 | 0.1615 | 0.0448 |  |  |  |

Significantly higher 15N enrichments at NW compared to SW is indicated by dark blue colour.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **June** | **August** | **September** |
| **Aboveground** | NW | 2325±134 | 2590±155 | 1919±93 |
|  | SW | 2031±106 | 2065±90 | 1762±98 |
| **Belowground** | NW | 1893±98 | 2421±155 | 2789±126 |
|  | SW | 1546±7 | 1576±60 | 1955±96 |

**Table S5: Aboveground and belowground dry plant biomass (mg) of beech seedlings for the three harvest dates. n=48 (June and August); n=24 (September). Significantly larger biomass at NW compared to SW tested for single harvest dates is indicated by dark blue colour.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Mean**  **[mg 13C excess]** | **SD** | **% of applied**  **13C excess** | **Mean**  **[mg 13C excess]** | **SD** |
| **June\_6h** | 0.0072 | 0.0078 | 0.4280 | -0.0028 | 0.0031 |
| **June\_48h** | -0.0006 | 0.0032 | -0.0347 | -0.0127 | 0.0082 |
| **August\_6h** | 0.0003 | 0.0056 | 0.0194 | -0.0007 | 0.0031 |
| **August\_48h** | 0.0002 | 0.0048 | 0.0108 | 0.0005 | 0.0043 |
| **September\_3months** | 0.0248 | 0.0086 | 1.4719 | 0.0117 | 0.0112 |

**Table S6: 13C recovery (mg 13C excess, and % of 13C excess applied via glutamine) in plant (sum of fine roots, coarse roots, stem, leaves) for the single harvesting dates (month\_time after glutamine labelling). No significant differences were observed between NW and SW.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Harvest date\_time after 13C labelling** | NW | | SW | | Two-Way-ANOVA | | |
|  | mean | SE | mean | SE |  | p | F |
| **June\_6h** | -0.0004 | 0.0001 | -0.0006 | 0.0003 | Exposure | 0.924 | 0.009 |
| **June\_48h** | -0.0002 | 0.0002 | -0.0014 | 0.0003 | Time | **0.000** | 6.178 |
| **August\_6h** | 0.0005 | 0.0006 | 0.0000 | 0.0005 | Interactions | **0.003** | 4.602 |
| **August\_48h** | -0.0010 | 0.0003 | -0.0007 | 0.0004 |  |  |  |
| **September\_3 months** | -0.0003 | 0.0005 | 0.0012 | 0.0002 |  |  |  |

**Table S7: 13C enrichment (atom%) in excess of natural abundance in mycorrhizal root tips harvested in June, August and September. No significant 13C excess enrichment was observed in mycorrhiza within 48 hours after 13C glutamine labelling.**

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