**Supplementary material**

**Hydroxylamine contributes more to abiotic N2O production in soils than nitrite**

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Fig. S1 hydroxylamine (HA) concentrations in upland (S1) and riparian (S2) forest soils with the addition of ammonium and nitrate after three day’s oxic and anoxic incubations.

Table S1 Soil N2O production (ng N g-1 dry soil) after H2O addition (control treatment) with oxic and anoxic pre-treatment without gamma-irradiation.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Oxic | | Anoxic | |
| 1 h | 7 h | 1 h | 7 h |
| F1 | 2.50 | 7.33 | 0.64 | 1.70 |
| F2 | 2.47 | 10.26 | 0.85 | 1.91 |
| F3 | 4.22 | 21.63 | 0.66 | 2.32 |
| F4 | 2.53 | 6.24 | 1.04 | 2.48 |
| F5 | 3.47 | 8.17 | 3.09 | 5.19 |
| FR | 0.43 | 0.86 | 0.20 | 0.64 |
| G | 71.31 | 512.10 | 5.62 | 32.84 |
| A | 1.54 | 8.57 | 1.00 | 4.70 |