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Supplementary material

Table S1. The $[NO_3^-]$ (given in μg-N g^{-1}, dw) originally existed in moss tissues, and the absorbed and remained in moss tissues (*H. plumaeforme*) after being treated with different $[NO_3^-]_{substrate}$ (mg-N l^{-1}). The $[NO_3^-]_{absorbed}$ was calculated by monitoring the $[NO_3^-]$ in supplied solutions

Tissue	Light/Dark	$[NO_3^-]_{substrate}$	$[NO_3^-]_{original}$	$[NO_3^-]_{absorbed}$	$[NO_3^-]_{residual}$
New	Light	0.43	2.5	23.9	1.2
New	Light	1.73	2.5	99.9	1.2
New	Light	3.48	2.5	181.1	0.6
New	Light	3.90	2.5	186.2	2.5
New	Dark	3.90	2.5	183.3	1.8
Old	Light	3.90	1.6	67.6	1.8

Fig. S1. Photographs of the moss *H. plumaeforme* grown and used in this study.

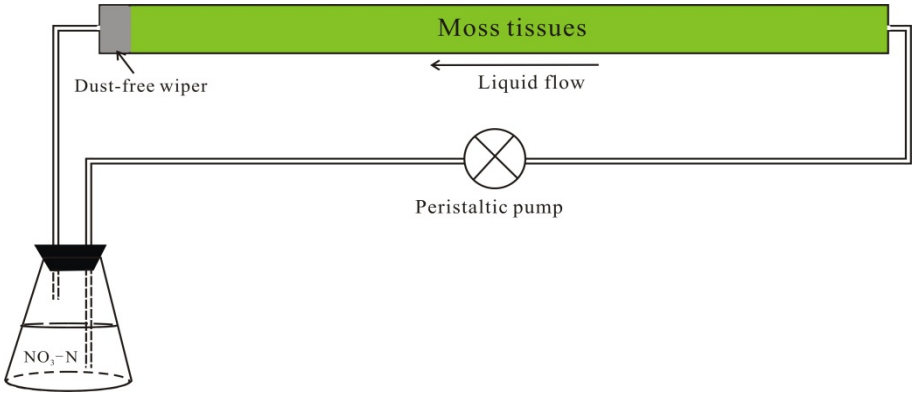

Fig. S2. Diagram showing the device supplying nitrate to moss tissues.

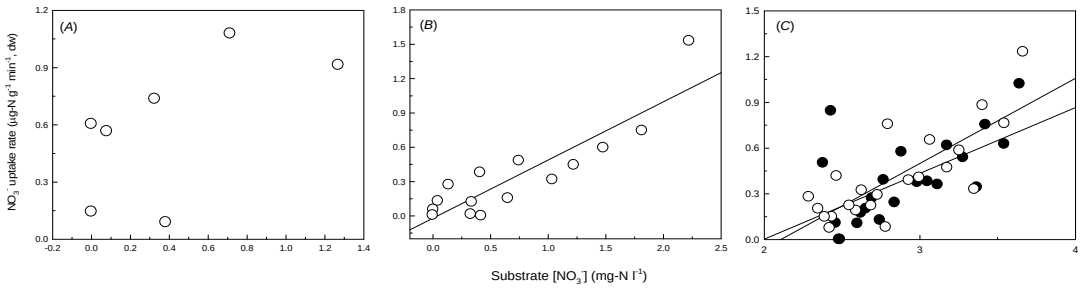

Fig. S3. The $[NO_3^-]$ in supplied solutions plotted against corresponding uptake rates in new tissues of *H. plumaeforme*. (*A*) 0.43 mg-N l^{-1} and 1.73 mg-N l^{-1} ($y = 1.05x/(0.22 + x)$, $R^2 = 0.00$, $P = 1.00$); (*B*) 3.48 mg-N l^{-1} ($y = 0.51x - 0.02$, $R^2 = 0.78$, $P < 0.0001$); (*C*) 3.90 mg-N l^{-1} (in the light: $y = 0.56x - 1.18$, $R^2 = 0.62$, $P < 0.0001$; In the dark: $y = 0.43x - 0.86$, $R^2 = 0.37$, $P = 0.003$). Data within 30 mins (high concentration, low uptake rate; Fig. 1) was excluded. (○) and (●) showed the light and dark conditions, respectively.

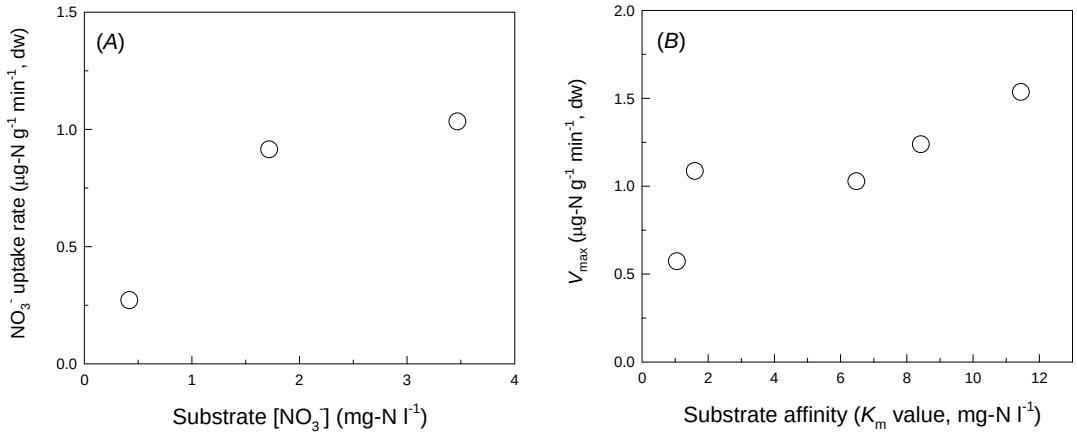

Fig. S4. (*A*) Substrate [NO_3^-] (0.43, 1.73, 3.48 mg-N l^{-1}) plotted against uptake rates in new moss tissues. Rates of NO_3^- uptake are shown within the same time period (90 min). The regression line is from fitting the Michaelis–Menten equation to the data ($y = 1.54x/(1.52 + x)$, $R^2 = 0.95$, $P = 0.14$). (*B*) Relation between the substrate affinity (K_m) and V_{max} of NO_3^- for new tissues ($y = 0.07x + 0.69$, $R^2 = 0.73$, $P = 0.07$).