The form of nitrogen nutrition affects resistance against *Pseudomonas syringae* pv. *phaseolicola* in tobacco

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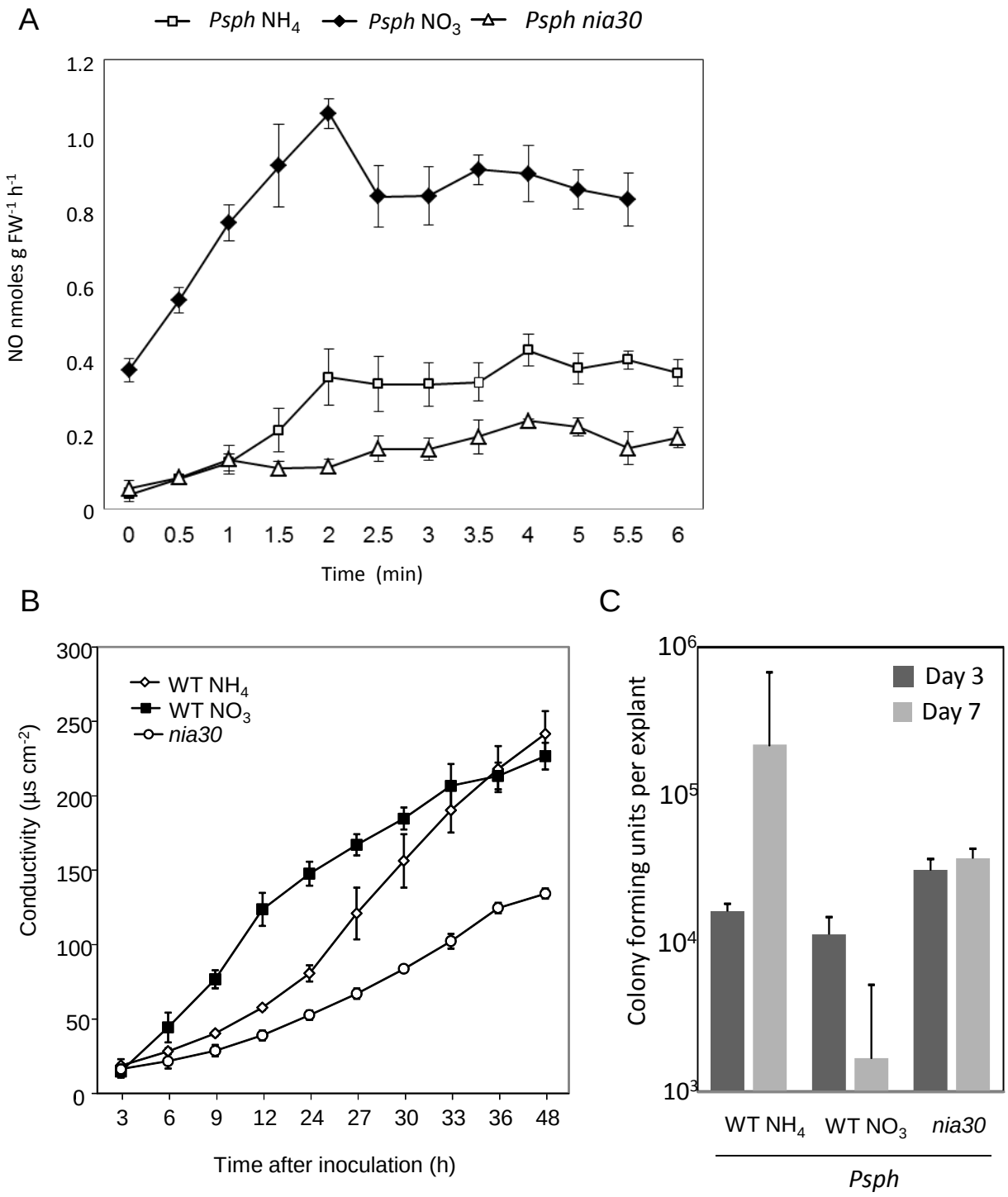
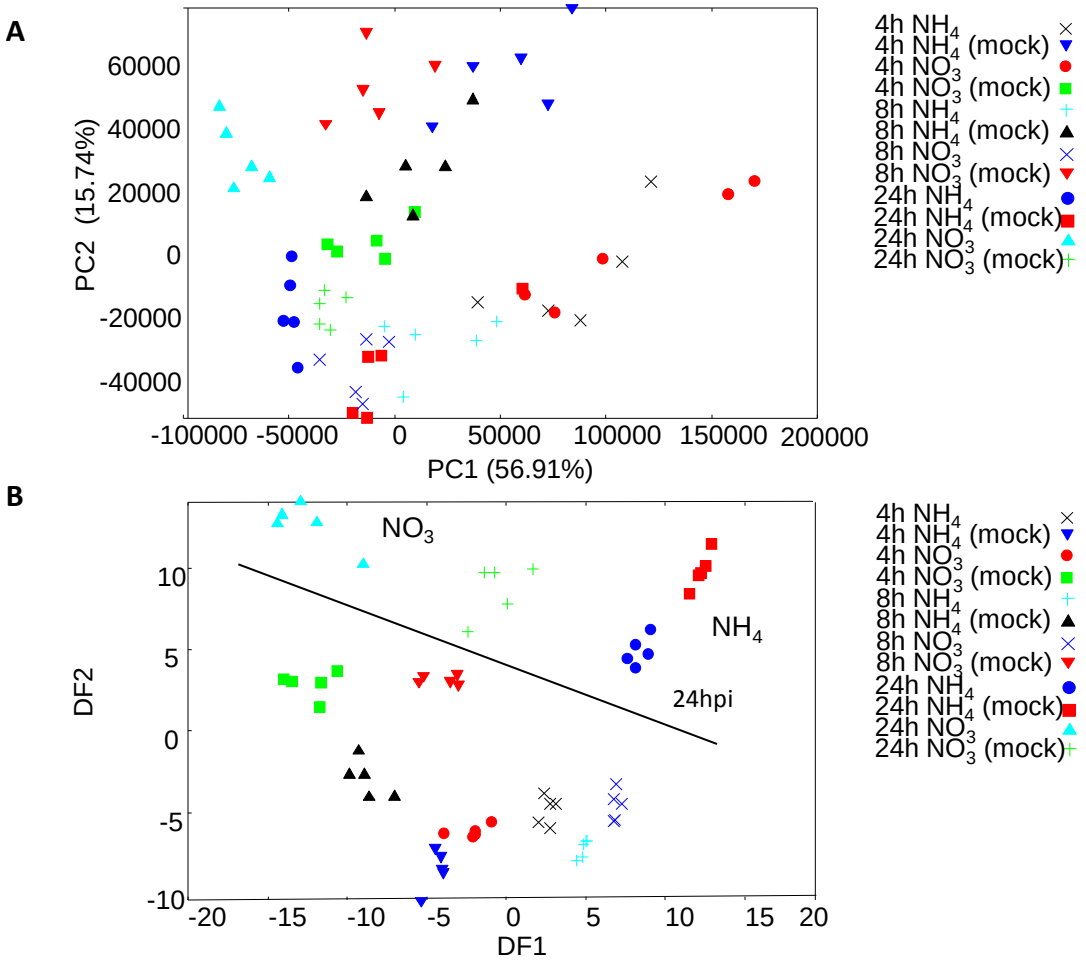
Supplementary Table 1: Loading vectors for PCA models shown in Fig. 5A, B and C which analyse metabolite changes occurring in NO_3^- or NH_4^+- in tobacco leaves following mock and actual inoculation with *Pseudomonas syringae* pathovar *phaseolicola*

	Fig. 5A		Fig. 5B		Fig. 5C	
	Mock		NO_3^--treated		NH_4^+-treated	
	PC1	PC2	PC1	PC2	PC1	PC2
4-aminobutyric acid	0.189908	0.077565	0.08243	0.08763	**0.1452**	**0.146334**
Galactose	**0.05578**	**0.674438**	**0.053127**	**0.65843**	**-0.2877**	**0.274565**
Fumarate	**0.6234**	**0.16878**	**0.602465**	**0.09085**	**0.52104**	**-0.19512**
Glutamine	**0.2147**	**0.6877**	**0.192641**	**0.535432**	**-0.09445**	**0.579814**
Glutamate	**0.04377**	**0.5432**	**-0.15874**	**0.2874**	**0.095644**	**0.200134**
Inositol	**0.05324**	**0.3348**	**-0.00747**	**0.4015**	**-0.18766**	**0.146521**
Malate	**0.6114**	**-0.5687**	**0.388412**	**0.1657**	**0.44351**	**-0.11745**
Proline	**0.061011**	**0.4125**	**-0.20876**	**0.209144**	**0.10457**	**0.19674**
Putrescine	0.0954	0.11636	**0.19833**	**-0.7223**	0.401121	0.501247
Spermidine	-0.04714	0.02751	**0.212**	**0.2247**	0.004574	0.00784



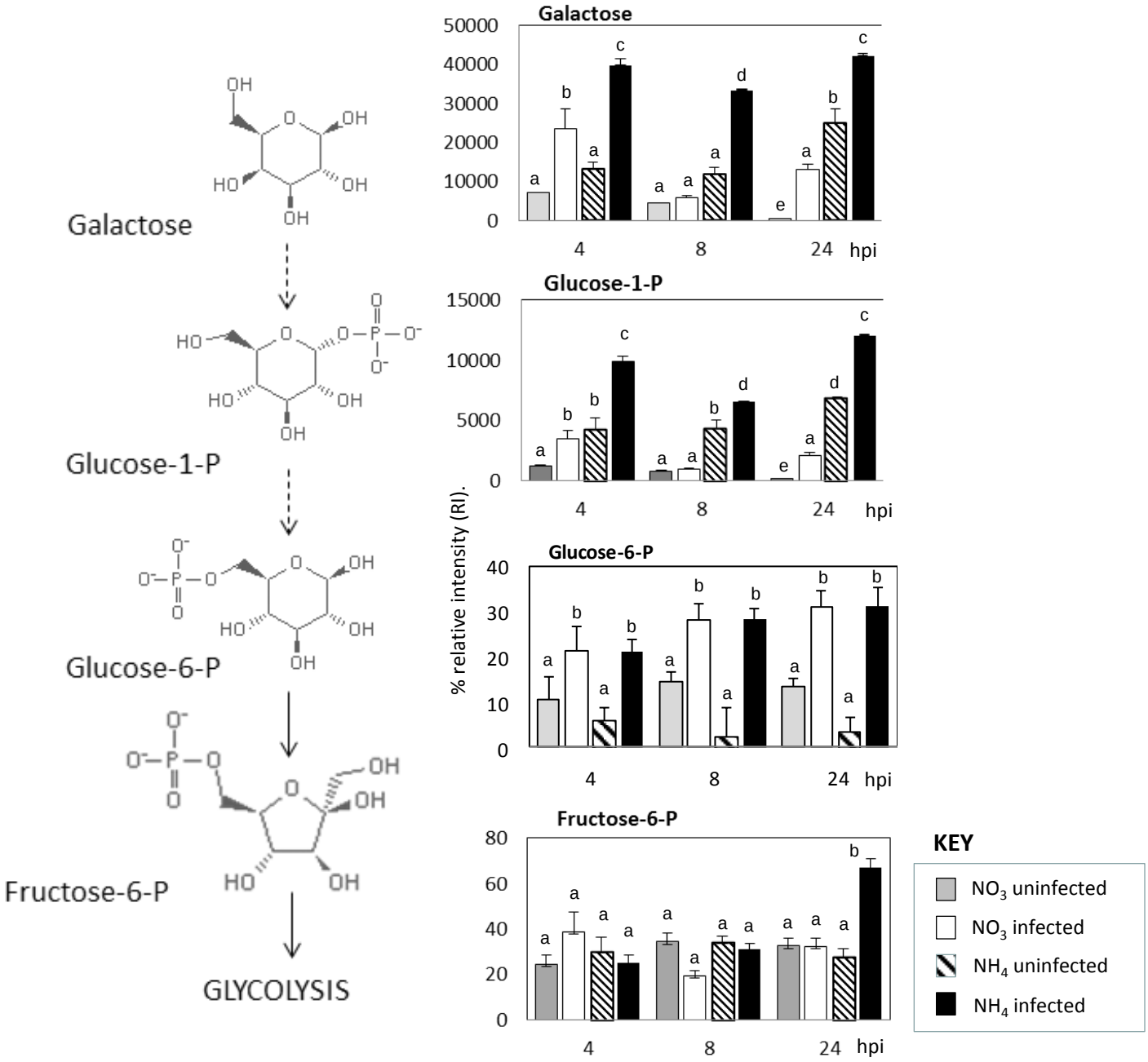
Supplementary Figure 1: Nitrate reductase dependent effects on the hypersensitive response HR elicited by *Pseudomonas syringae* pv. *phaseolicola* in tobacco

(A). Nitric oxide production in detected wild type tobacco leaves or *Nia30* nitrate reductase suppressed lines following inoculation with avirulent *Pseudomonas syringae* pv. (*P. s.* pv.) *phaseolicola* (*Psph*) using a Quantum Cascade Laser (QCL). For comparative purposes NO production from mock-inoculated (10 mM $MgCl_2$) detached leaves of wild type tobacco (**B)** Electrolyte leakage from leaf discs sampled from areas of either NO_3^- or NH_4^+ fed wild type plants or or the *nia30* line and inoculated with *Psph,* **(C)** *Psph* populations 1 cm^2 diameter explants from in NO_3^- or NH_4^+ -fed tobacco and *nia30* plants at 3 (grey boxes) and 7 (black boxes) days with *Psph* (n = 6 ± SD).



Supplementary Figure 2: Multivariate analyses of metabolite profiles of in NO_3^- and NH_4^+-fed tobacco leaves following inoculation with *Pseudomonas syringae* pathovar *phaseolicola*

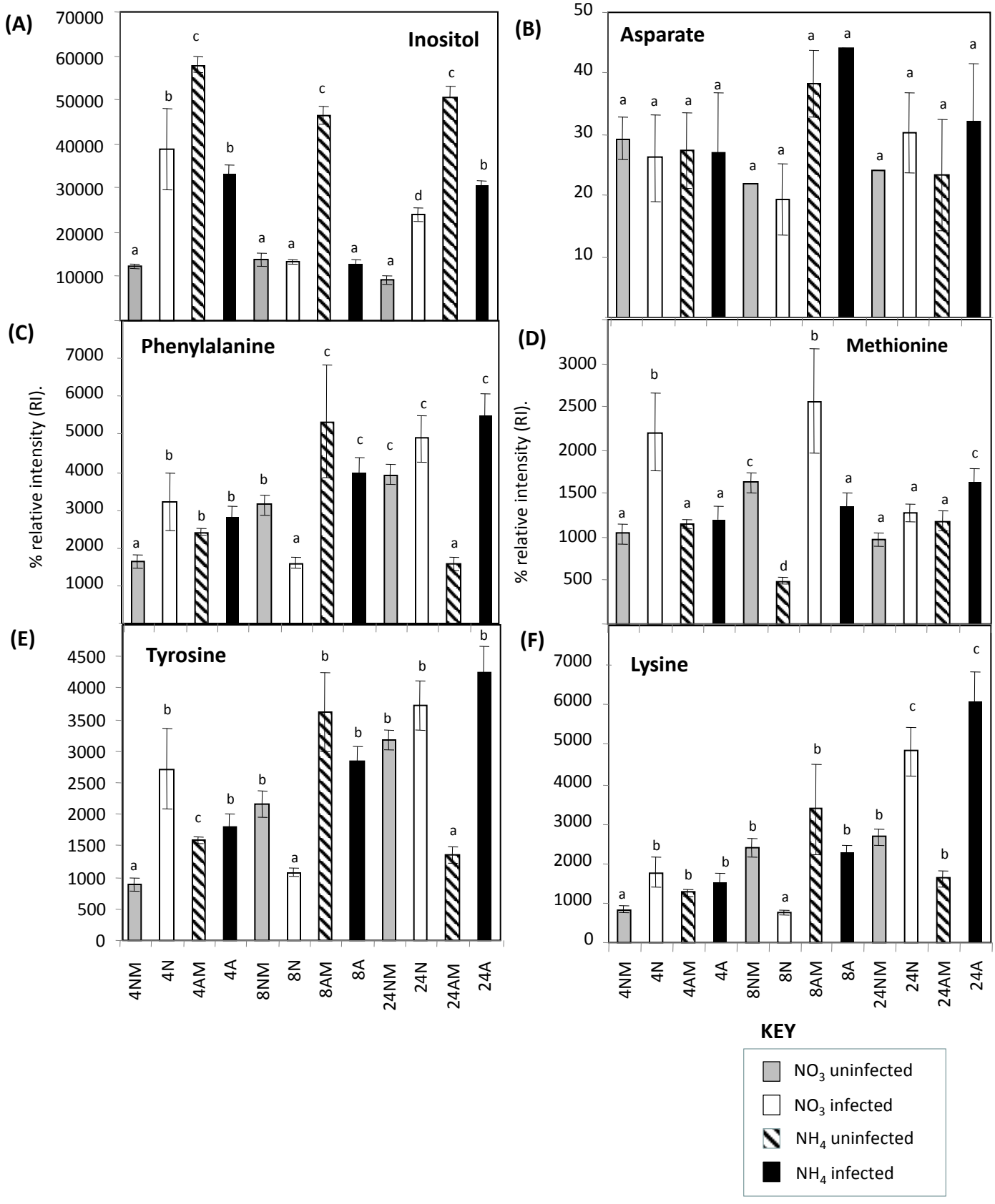
(A) Principal Component Analysis (PCA) of 150 metabolites detected by Gas Chromatography Mass Spectrometry (GC-MS) in NO_3^- and NH_4^+ -fed tobacco leaves following inoculation with *Pseudomonas syringae* pathovar *phaseolicola* (*Psph*) or mock inoculation with 10 mM $MgCl_2$. **(B)** Discriminant Function Analyses (DFA) of the same data as analysed in A. Clustering of treatment and timepoint groups is seen in NO_3 and NH_4 fed 24 hpi samples d as delineated in the plot. DFA was carried out on 5 PCs explaining 93.4% of the total variation. Discriminant Function (DF) 1 and 2 are plotted

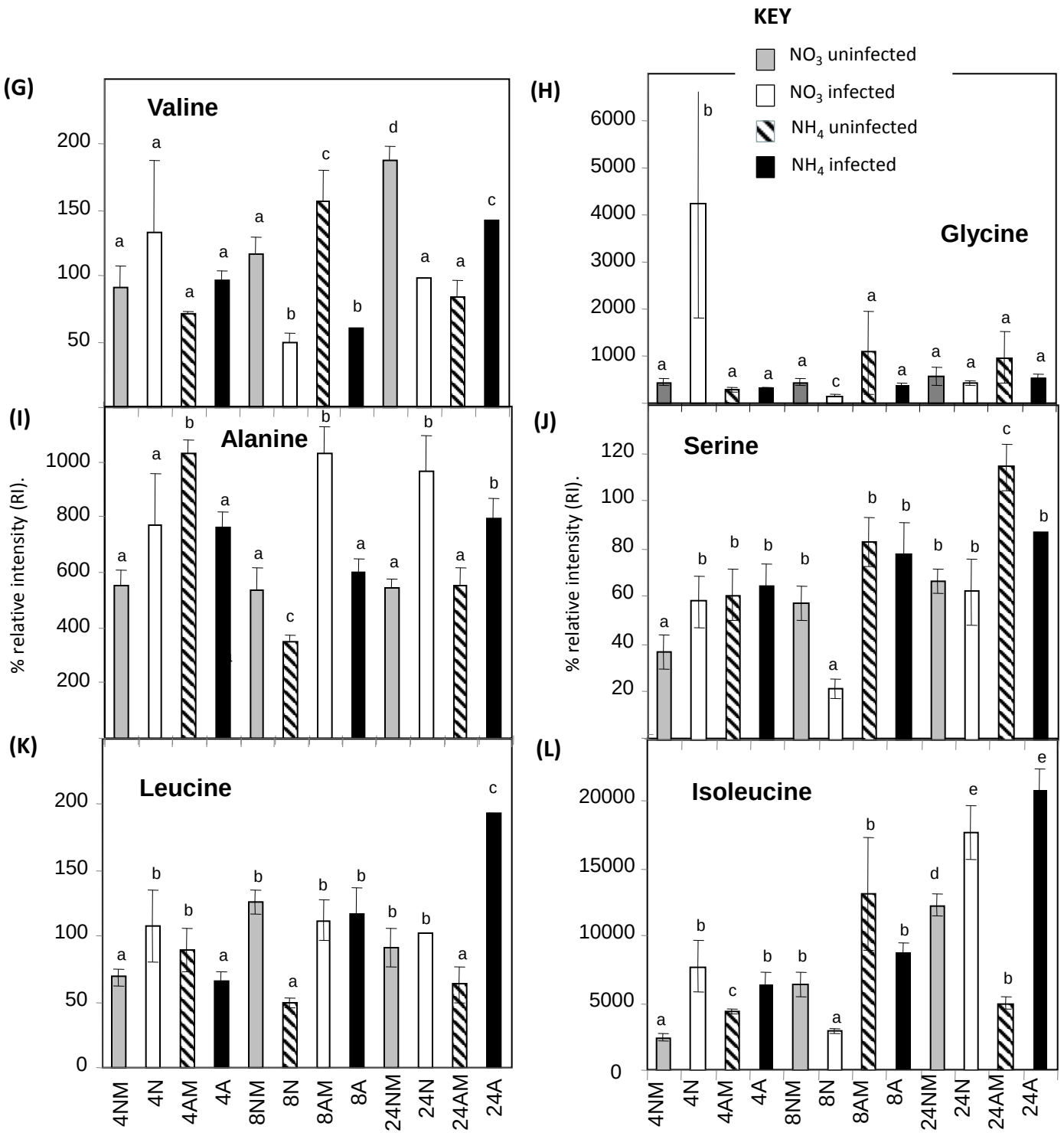


Supplementary Figure 3: Galactose and glycolytic metabolite accumulation in NO_3^- and NH_4^+ -fed tobacco leaves following inoculation with P*seudomonas syringae* pathovar *phaseolicola* or 10 mM MgCl2.

(A) Galactose contributes to a number of biochemical pathways but a link to glycolytic metabolism is shown. Broken arrows indicate multiple biochemical steps. Metabolites were detected by Gas Chromatography Mass Spectrometry (GC-MS) in NO_3^- and NH_4^+-fed tobacco leaves following inoculation with P*seudomonas syringae* pathovar *phaseolicola* (*Psph*) or mock inoculation with 10 mM $MgCl_2$. hpi = hours following inoculation. Shown are the results for, **(B)** glucose-1-phosphate (P); **(C)** glucose-6-phosphate (P) and **(D)** fructose – 6-phosphate (P). Data are displayed as % relative intensity (RI). Data sets marked with a, b or c within each graph, indicate groupings within which non-significant differences were observed but were significantly different (*adjusted P* < 0.05) from all other groups

Supplementary Figure 3





Supplementary Figure 4: Amino acid accumulation in NO_3^- and NH_4^+ -fed tobacco leaves following inoculation with P*seudomonas syringae* pathovar *phaseolicola* or 10 mM MgCl2.

Amino acids were detected by Gas Chromatography Mass Spectrometry (GC-MS) in NO_3^- and NH_4^+-fed tobacco leaves following inoculation with P*seudomonas syringae* pathovar *phaseolicola* (*Psph*) or mock inoculation with 10 mM $MgCl_2$. Samples designated with either 4, 8 and 24 refer to hours following inoculation; N = NO_3^- fed; A = NH_4^+ fed plants. M = Mock inoculated. Samples with no M, indicate samples inoculated with *Psph*. Data are displayed as % relative intensity (RI). Data sets marked with a, b or c within each graph, indicate groupings within which non-significant differences were observed but were significantly different (*adjusted P* < 0.05) from all other groups