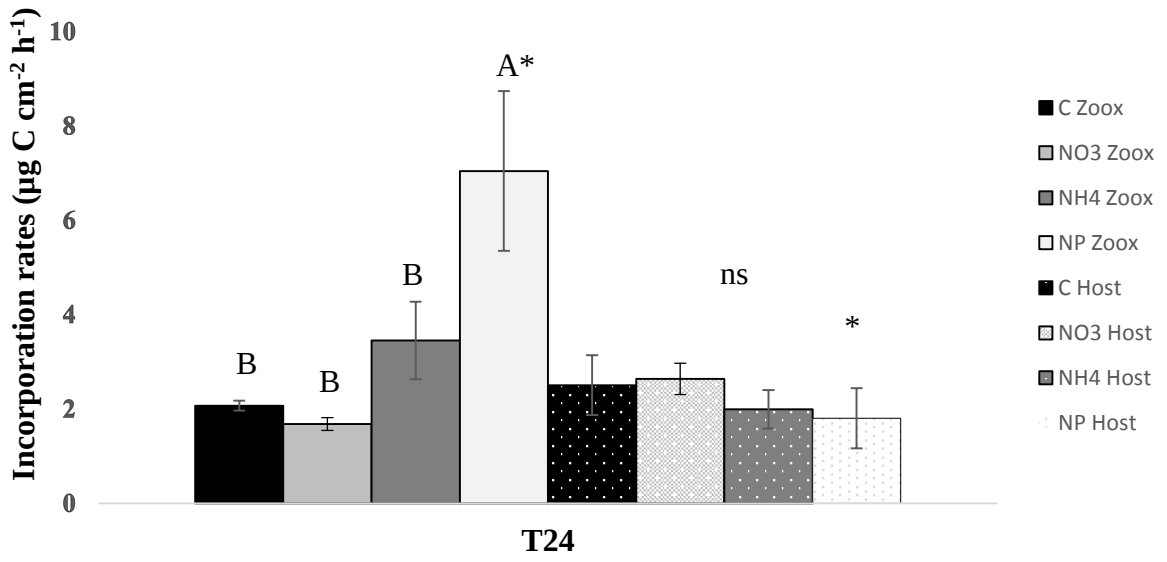
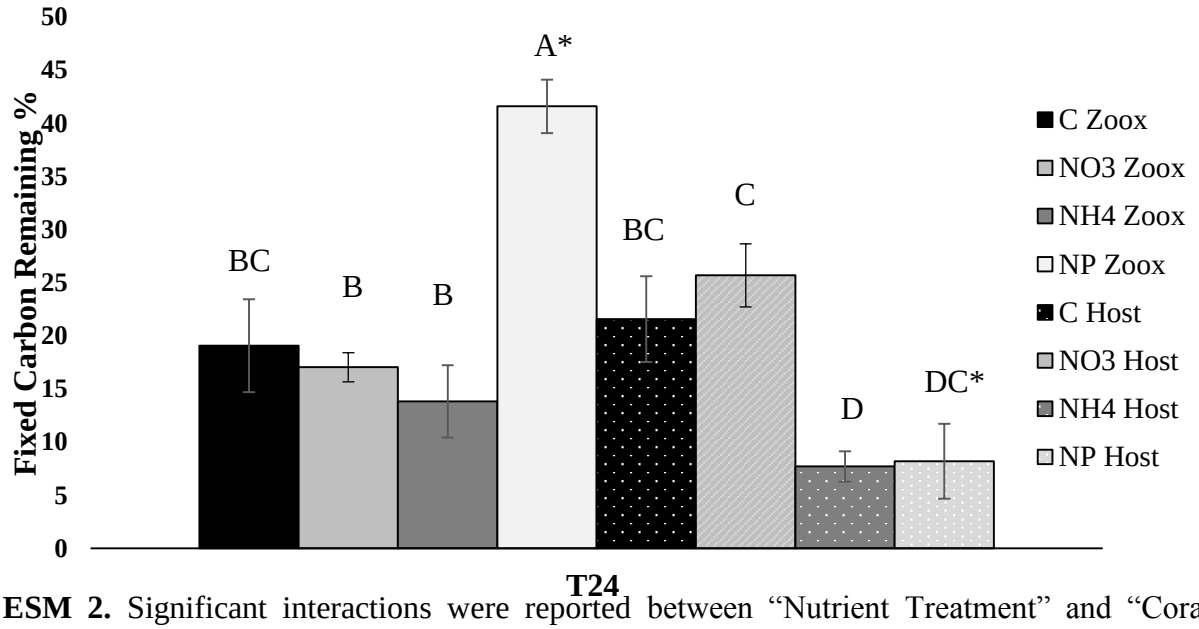
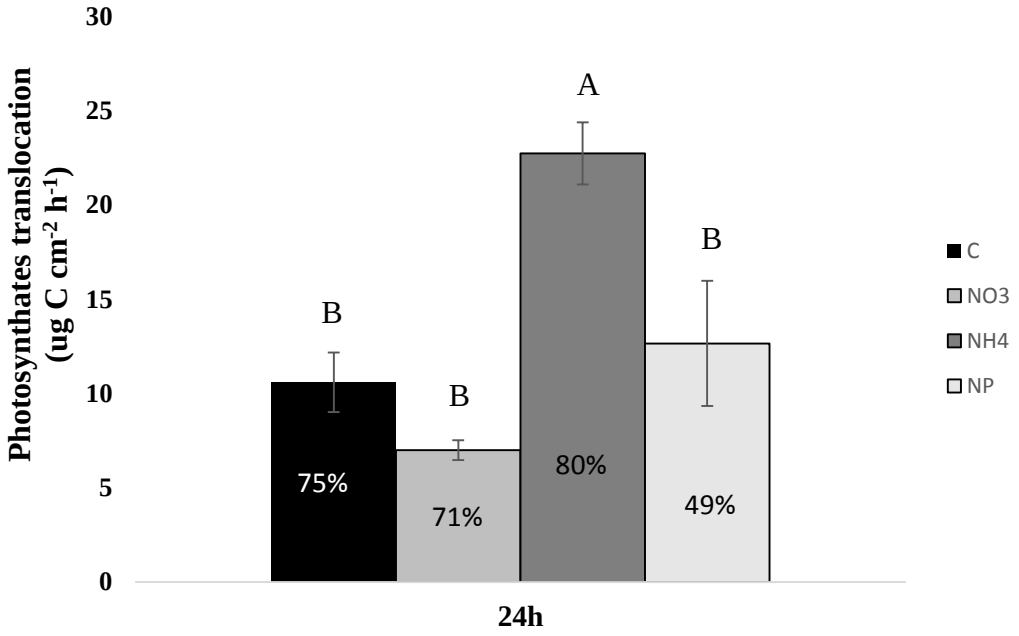
Electronic supplementary material (ESM)



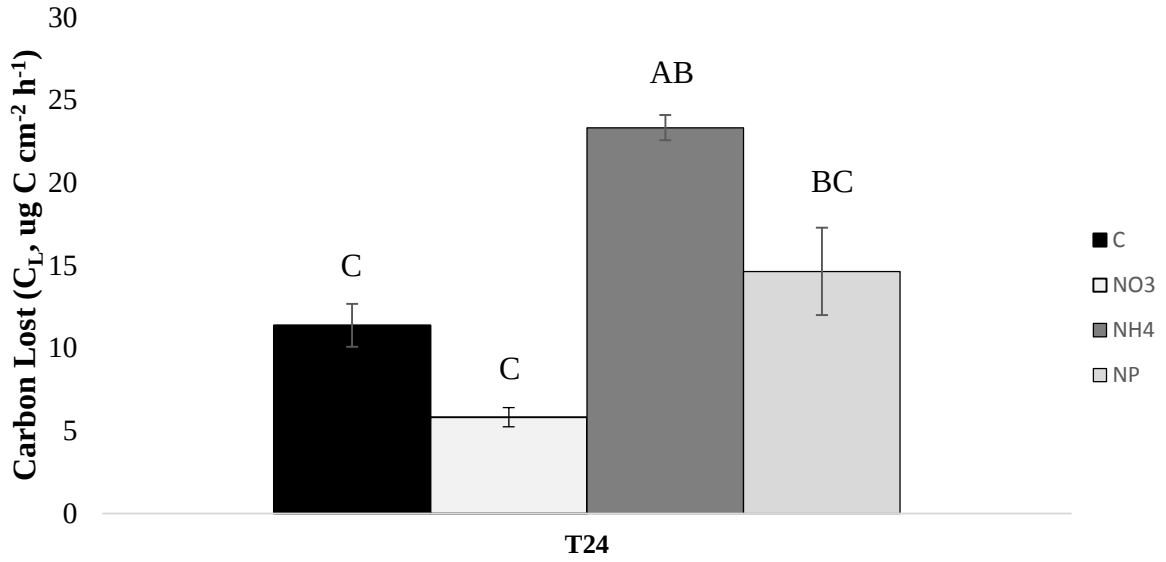
ESM 1. Significant interaction were observed between "Nutrient treatment" and "Coral Compartment" for the carbon incorporation rates (ANOVA, $p<0.001$). After 24h, NP treatment presented the highest symbiont incorporation rates, ca. 7.01 ug C cm^{-2} h^{-1} (Tukey HSD, $p<0.01$), while no significant differences were observed between host and symbionts for the three other treatments (Tukey-HSD, $p>0.05$). Stars indicate significant differences between incorporation rates in symbionts and host. Data are presented as mean ± SE.



ESM 2. Significant interactions were reported between "Nutrient Treatment" and "Coral Compartment" for the percentage of fixed carbon remaining after 24h (ANOVA, $p<0.001$). NP-enriched nubbins fixed a higher percentage of carbon in symbiont tissues than in the other treatments (Tukey HSD, $p<0.002$). Percentages of fixed carbon remaining in host tissues was higher in NO_3-enriched corals than in the ammonium-enriched nubbins (Tukey HSD, $p<0.05$). Data are presented as mean ± SE.



ESM 3. NH_4 enrichment greatly increased the amount of photosynthates transferred to the host after 24h compared to the other treatments, ca. 22 ug C cm^{-2} h^{-1} (Tukey HSD, $p<0.006$). Finally, NP-enriched nubbins showed middle values of photosynthates translocation, between those of the control and the NH_4-enriched treatments. After 24h, NP condition presented a lower percentage of translocation than control and NH_4-enriched corals, which maintain similar values, between 75 and 80%, against 49% in NP treatment (Tukey HSD, $p<0.05$). Data are presented as mean ± SE.



ESM 4. After 24h, NH_4-enriched nubbins exhibited the highest C_L, ca. 23.3 ug C cm^{-2} h^{-1} than control and NO_3-enriched corals (Tukey HSD, $p<0.03$). No significant differences were observed for the percentages of carbon lost within the treatments (ANOVA, $p>0.05$). Data are presented as mean ± SE.

ESM 5a. Results of the analyses of variance (ANOVA) for the following different physiological response variables. P-values are considered significant for $p<\alpha$ and $\alpha=0.05$

Factor	**Df**	**P-value**	**F-value**
Symbionts density (zoox cm^{-2})			
Nutrient Treatment	3	**<0.0000001**	44.29
Chlorophyll content (µg Chl($a+c_2$) cm^{-2})			
Nutrient Treatment	3	**<0.000001**	17.39
Protein concentration (mg cm^{-2})			
Nutrient Treatment	3	**<0.0001**	14.15
Gross photosynthesis (µmoles O_2 h^{-1} $zoox^{-1}$)			
Nutrient Treatment	3	**<0.001**	31.43
Calcification rate (µg C $cm^{-2}h^{-1}$)			
Nutrient Treatment	3	**<0.001**	13.52

ESM 5b. Results of the analysis of variance (ANOVA) for the different response variables tested during the ^{13}C labelling experiment after 5h incubation in ^{13}C and a chase of 24h. P-values are considered significant for $p<\alpha$ and $\alpha=0.05$.

Factor	**Df**	**P-value After 24h**	**F-value**
Incorporation rate (ρ)			
Nutrient Treatment	3	**0.03**	6.03
Coral Compartment	1	0.11	7.57
Nutrient Treatment * Coral Compartment	3	**<0.001**	10.19
Fixed carbon remaining (C_R)			
Nutrient Treatment	3	**0.03**	6.1
Coral Compartment	1	0.05	9.66
Nutrient Treatment * Coral Compartment	3	**<0.001**	22.25
Amount of carbon lost (C_L in ug C cm^{-2})			
Nutrient Treatment	3	**0.003**	22.49
Percent of carbon lost (C_L in %)			
Nutrient Treatment	3	2.72	1.562
Amount of photosynthate translocated(Ts in ug C cm^{-2} h^{-1})			
Nutrient Treatment	3	**<0.0001**	40.42
Percent of photosynthate translocated (Ts in %)			
Nutrient Treatment	3	**0.028**	9.5
Gross photosynthesis (PgC) (µg C $cm^{-2}h^{-1}$)			
Nutrient Treatment	3	**<0.0001**	26.38
Holobiont respiration (Rc)(µg C $cm^{-2}h^{-1}$)			
Nutrient Treatment	3	**<0.001**	16.08
Symbiont respiration (Rs)(µg C $cm^{-2}h^{-1}$)			
Nutrient Treatment	3	**<0.0001**	24.52
Host respiration (Rh)(µg C $cm^{-2}h^{-1}$)			
Nutrient Treatment	3	**<0.001**	11.56