# Incorporating the variability of species mean trait values in trait-based community assembly

*JingYang*

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**Table 1.**

**Absolute and relative changes and their standard errors on species mean trait values under light reduction, inter-specific interaction and their joint effect for each trait of fast and slow growing species in our two years' seedling experiment.**

Table 1:

| Trait | Light reduction | Interspecific interactions | Joint effect |
|---|---|---|---|
| LDMC | 6.02±2.62** (17.67%) | 1.9±0.49*** (5.87%) | 7.63±2.21** (22.86%) |
| SLA | 10.14±2.13*** (79.78%) | 2.07±0.42 (18.07%) | 11.91±2.66*** (94.81%) |
| MLA | -4.19±3.54** (-16.38%) | -0.03±1.03*** (-1.45%) | -4.47±3.52 (-17.11%) |
| WD | 1.86±2.65*** (2.91%) | 2.83±0.97** (7.19%) | 1.51±1.84 (1.96%) |

* SLA: specific leaf area; LDMC: leaf dry mass content, MLA: mean leaf area; WD: wood density

† .:<0.1;*: <0.05; **: <0.01; ***: <0.001

**Figure 1.**

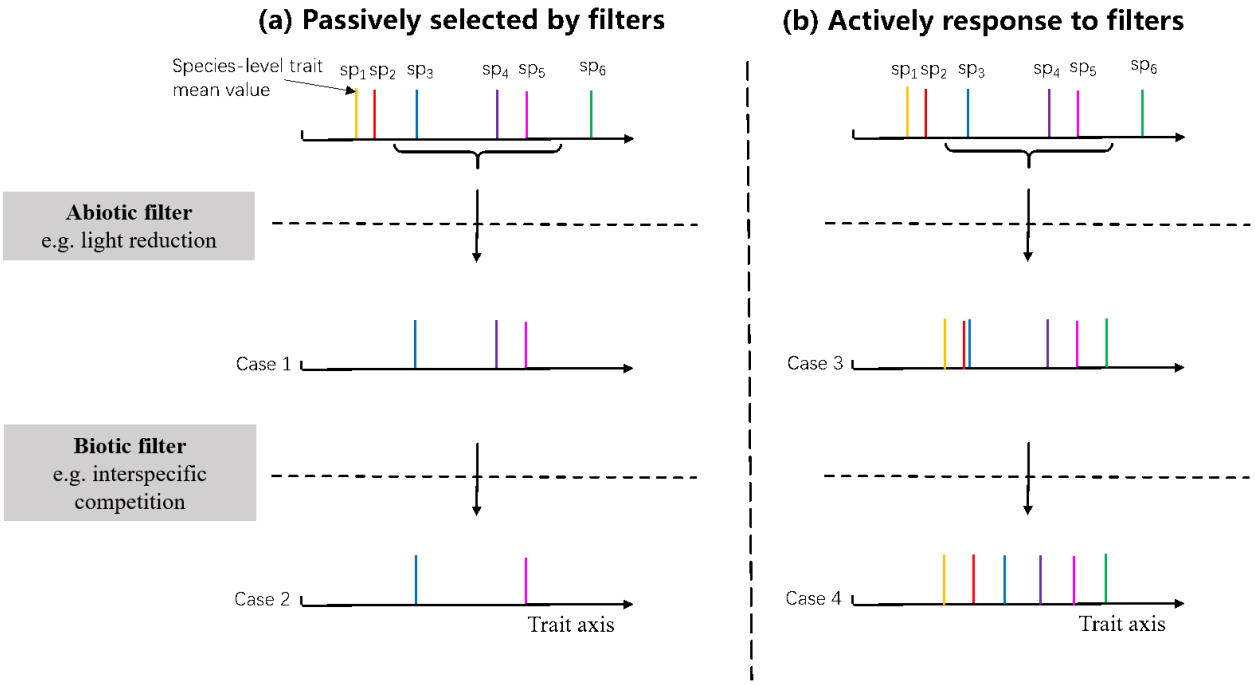


**Figure 1.** Illustration of possible responses of species mean trait values to (b) light reduction, (c) interspecific competition and (d) their joint effect. A vertical colored line on trait axis denotes species mean trait value, $\overline{m_i}$, of species i, and the positions of these colored lines represent the relative size of mean trait values for different species.

**Figure 2.**

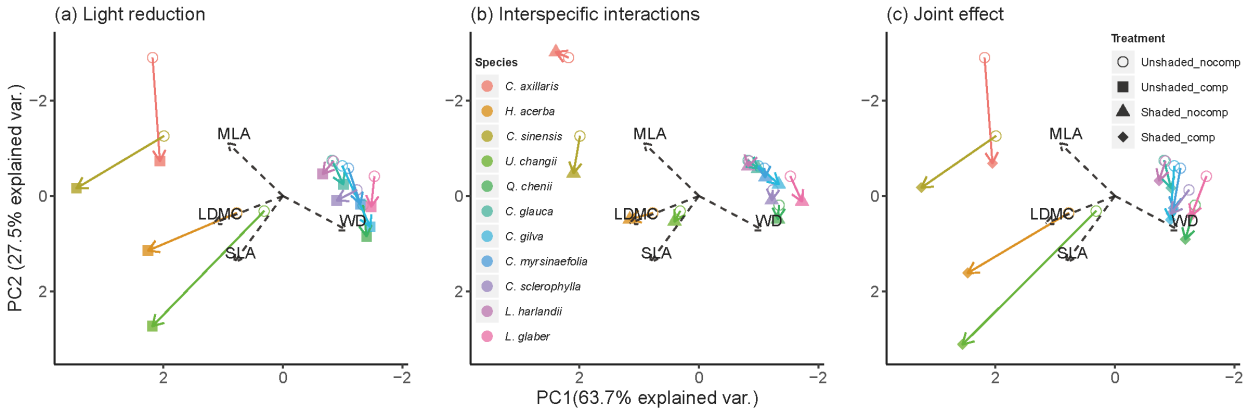


**Figure 2.** Observed responses of species mean trait values to (a) light reduction, (b) interspecific interactions and (c) their joint effect in our two years' seedling experiment. Characters of species mean trait values of specific leaf area (SLA), leaf dry mass content (LDMC), mean leaf area (MLA) and wood density (WD) of eleven tree species were summarized by the first two axes of principle components (87.6% explained variance).

**Figure 3.**

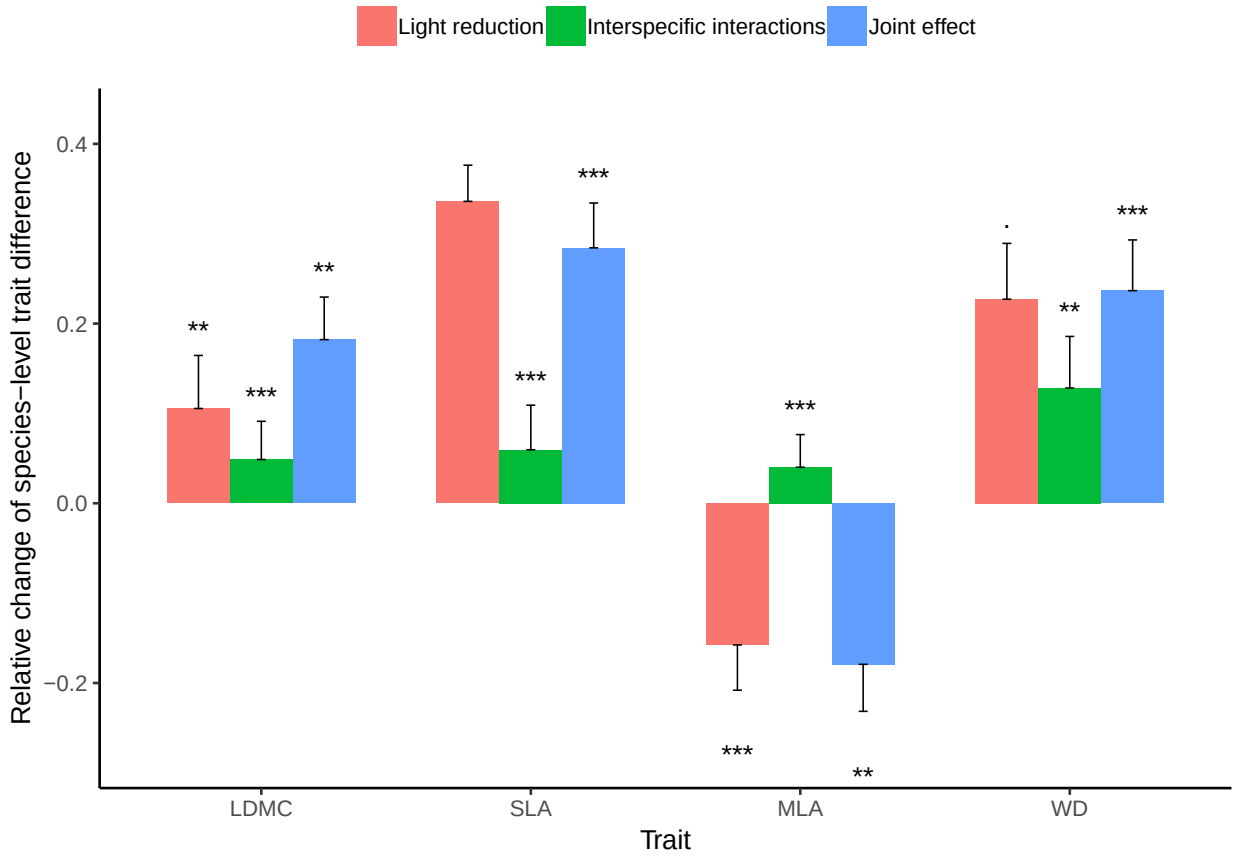


**Figure 3.** Observed responses of species-level trait differences among all species to light reduction, interspecific interactions and their joint effect in our two years' seedling experiment. Responses of species-level trait differences were denoted by the percentage of species average change for specific leaf area (SLA), leaf dry mass content (LDMC), mean leaf area (MLA), wood density (WD) and height, respectively. Vertical line is one standard error bar and stars above the bar represent significant levels of the percentage of changes (:<0.1;∗: <0.05; ∗∗: <0.01; ∗ ∗ ∗: <0.001).

**Figure 4.**

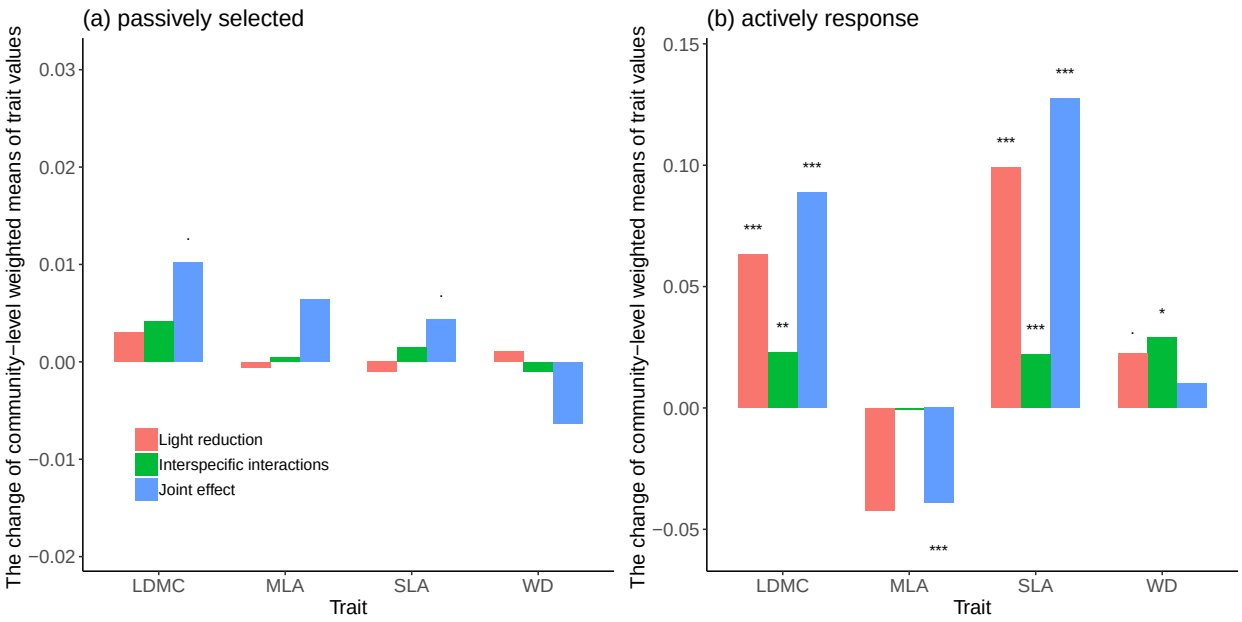


**Figure 4.** The change of community-level multidimensional functional diversity to light reduction, interspecific interactions and their joint effect for specific leaf area (SLA), leaf dry mass content (LDMC), mean leaf area (MLA), wood density (WD) and height in the absence of trait response (A) and in the presence of trait response (B) (:<0.1;∗: <0.05; ∗∗: <0.01; ∗ ∗ ∗: <0.001).

**Figure 5.**

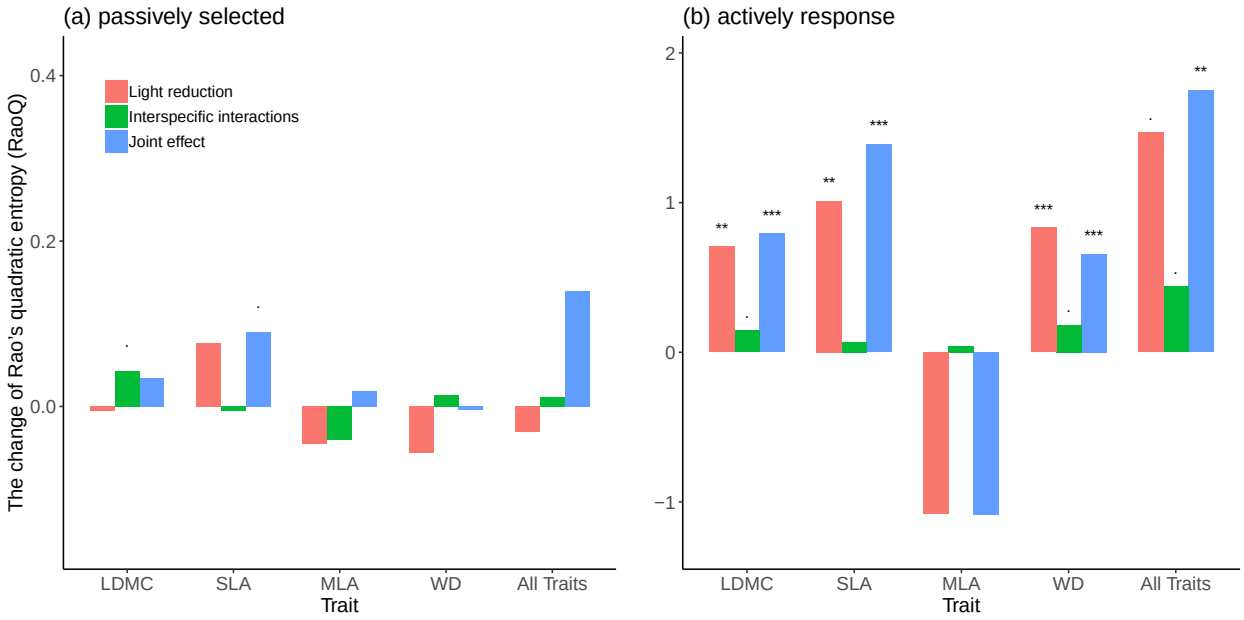


**Figure 5.** The change of Rao's quadratic entropy (RaoQ) to light reduction, interspecific interactions and their joint effect for specific leaf area (SLA), leaf dry mass content (LDMC), mean leaf area (MLA), wood density (WD) and multidimensional traits in the absence of trait response (A) and in the presence of trait response (B) (:<0.1;∗: <0.05; ∗∗: <0.01; ∗ ∗ ∗: <0.001).

# Appendix

## Table S1.

**Table S1.** Percentages of changes on species mean trait values under light reduction, interspecific interaction and their joint effect for each trait of each species in our two years' seedling.

Table 2:

| *Species* | Trait | Light reduction (%) | Interspecific interactions (%) | Joint effect (%) |
|---|---|---|---|---|
| *C. axillaris* | LDMC | 0.20 | 0.04 | 0.19 |
| *H. acerba* | LDMC | 0.06 | 0.05 | 0.24 |
| *C. sinensis* | LDMC | 0.34 | 0.13 | 0.35 |
| *U. changii* | LDMC | 0.80 | 0.09 | 0.72 |
| *Q. chenii* | LDMC | 0.06 | 0.06 | 0.08 |
| *C. glauca* | LDMC | 0.05 | 0.04 | 0.09 |
| *C. gilva* | LDMC | 0.22 | 0.07 | 0.27 |
| *C. myrsinaefolia* | LDMC | 0.11 | 0.03 | 0.19 |
| *C. sclerophylla* | LDMC | -0.14 | 0.01 | 0.04 |
| *L. harlandii* | LDMC | 0.06 | 0.03 | 0.09 |
| *L. glaber* | LDMC | 0.17 | 0.11 | 0.26 |
| *C. axillaris* | SLA | 1.17 | 0.07 | 1.24 |
| *H. acerba* | SLA | 1.04 | 0.18 | 1.12 |
| *C. sinensis* | SLA | 0.87 | 0.28 | 0.72 |
| *U. changii* | SLA | 1.01 | 0.07 | 1.39 |
| *Q. chenii* | SLA | 0.40 | 0.18 | 0.54 |
| *C. glauca* | SLA | 0.47 | 0.01 | 0.61 |
| *C. gilva* | SLA | 0.95 | 0.09 | 1.16 |
| *C. myrsinaefolia* | SLA | 0.77 | 0.25 | 1.09 |
| *C. sclerophylla* | SLA | 0.70 | 0.23 | 0.70 |
| *L. harlandii* | SLA | 0.56 | 0.15 | 0.64 |
| *L. glaber* | SLA | 0.84 | 0.47 | 1.23 |
| *C. axillaris* | MLA | -0.66 | 0.10 | -0.66 |
| *H. acerba* | MLA | 0.43 | 0.12 | 0.28 |
| *C. sinensis* | MLA | -0.07 | -0.27 | -0.14 |
| *U. changii* | MLA | -0.56 | 0.20 | -0.47 |
| *Q. chenii* | MLA | 0.06 | 0.06 | -0.09 |
| *C. glauca* | MLA | -0.28 | -0.07 | -0.18 |
| *C. gilva* | MLA | -0.22 | -0.15 | -0.18 |
| *C. myrsinaefolia* | MLA | -0.10 | 0.08 | -0.12 |
| *C. sclerophylla* | MLA | -0.44 | -0.12 | -0.29 |
| *L. harlandii* | MLA | -0.06 | -0.06 | -0.07 |
| *L. glaber* | MLA | 0.08 | -0.05 | 0.05 |
| *C. axillaris* | WD | -0.32 | 0.05 | -0.31 |
| *H. acerba* | WD | -0.23 | -0.05 | -0.14 |
| *C. sinensis* | WD | -0.26 | 0.03 | -0.21 |
| *U. changii* | WD | 0.02 | 0.10 | -0.04 |
| *Q. chenii* | WD | 0.14 | 0.06 | 0.09 |
| *C. glauca* | WD | 0.17 | 0.11 | 0.19 |
| *C. gilva* | WD | 0.52 | 0.23 | 0.30 |
| *C. myrsinaefolia* | WD | 0.25 | 0.06 | 0.17 |
| *C. sclerophylla* | WD | -0.12 | 0.03 | -0.01 |
| *L. harlandii* | WD | 0.00 | 0.01 | 0.06 |

| | | | | |
|---|---|---|---|---|
| *L. glaber* | WD | 0.14 | 0.18 | 0.13 |

[*] SLA: specific leaf area; LDMC: leaf dry mass content, MLA: mean leaf area; WD: wood density

[†] .:<0.1;*: <0.05; **: <0.01; ***: <0.001

## Table S2.

**Table S2.** The average changes on species mean trait values under light reduction, interspecific interaction and their joint effect for each trait of each species in our two years' seedling experiment.

Table 3:

| *Species pairname* | Trait | Light reduction (%) | Interspecific interactions (%) | Joint effect (%) |
|---|---|---|---|---|
| *C. axillaris - C. gilva* | LDMC | 0.08 | 0.03 | -0.04 |
| *C. axillaris - C. gilva* | SLA | 0.55 | -0.04 | 0.07 |
| *C. axillaris - C. gilva* | MLA | -0.50 | 0.10 | -0.63 |
| *C. axillaris - C. gilva* | WD | 0.54 | 0.39 | 0.57 |
| *C. axillaris - C. glauca* | LDMC | 0.22 | 0.02 | 0.10 |
| *C. axillaris - C. glauca* | SLA | 0.58 | -0.07 | 0.39 |
| *C. axillaris - C. glauca* | MLA | -0.52 | 0.01 | -0.38 |
| *C. axillaris - C. glauca* | WD | 0.37 | 0.21 | 0.36 |
| *C. axillaris - C. myrsinaefolia* | LDMC | 0.17 | -0.07 | -0.16 |
| *C. axillaris - C. myrsinaefolia* | SLA | 0.51 | -0.97 | 0.25 |
| *C. axillaris - C. myrsinaefolia* | MLA | -0.52 | -0.04 | -0.53 |
| *C. axillaris - C. myrsinaefolia* | WD | 0.36 | 0.25 | 0.14 |
| *C. axillaris - C. sclerophylla* | LDMC | 0.36 | -0.37 | 0.41 |
| *C. axillaris - C. sclerophylla* | SLA | 0.89 | 0.96 | 0.86 |
| *C. axillaris - C. sclerophylla* | MLA | -0.50 | 0.10 | -0.59 |
| *C. axillaris - C. sclerophylla* | WD | 0.04 | 0.19 | 0.17 |
| *C. axillaris - C. sinensis* | LDMC | 0.29 | -0.01 | 0.22 |
| *C. axillaris - C. sinensis* | SLA | 0.16 | 0.15 | -0.45 |
| *C. axillaris - C. sinensis* | MLA | -0.45 | 0.32 | -0.33 |
| *C. axillaris - C. sinensis* | WD | 0.74 | 0.90 | 0.87 |
| *C. axillaris - H. acerba* | LDMC | -0.19 | 0.08 | 0.03 |
| *C. axillaris - H. acerba* | SLA | 0.31 | 0.32 | 0.21 |
| *C. axillaris - H. acerba* | MLA | -0.86 | 0.09 | -0.91 |
| *C. axillaris - H. acerba* | WD | -0.04 | -0.23 | 0.05 |
| *C. axillaris - L. glaber* | LDMC | 0.11 | -0.57 | -0.09 |
| *C. axillaris - L. glaber* | SLA | 0.47 | -0.19 | 0.51 |
| *C. axillaris - L. glaber* | MLA | -0.52 | -0.03 | -0.52 |
| *C. axillaris - L. glaber* | WD | 0.25 | 0.29 | 0.28 |
| *C. axillaris - L. harlandii* | LDMC | 0.26 | 0.03 | 0.28 |
| *C. axillaris - L. harlandii* | SLA | 0.51 | -0.13 | 0.58 |
| *C. axillaris - L. harlandii* | MLA | -0.60 | 0.11 | -0.62 |
| *C. axillaris - L. harlandii* | WD | 0.20 | -0.06 | 0.28 |
| *C. axillaris - Q. chenii* | LDMC | 0.17 | -0.22 | 0.09 |
| *C. axillaris - Q. chenii* | SLA | -0.95 | 0.18 | 0.00 |
| *C. axillaris - Q. chenii* | MLA | -0.53 | 0.10 | -0.60 |
| *C. axillaris - Q. chenii* | WD | 0.24 | 0.16 | 0.22 |
| *C. axillaris - U. changii* | LDMC | 0.84 | 0.71 | 0.81 |
| *C. axillaris - U. changii* | SLA | 0.31 | -0.10 | 0.46 |
| *C. axillaris - U. changii* | MLA | -0.52 | -0.18 | -0.49 |
| *C. axillaris - U. changii* | WD | 0.23 | -0.17 | 0.00 |
| *C. gilva - C. glauca* | LDMC | -0.93 | -0.34 | -0.22 |
| *C. gilva - C. glauca* | SLA | 0.60 | 0.45 | 0.63 |
| *C. gilva - C. glauca* | MLA | -0.19 | 0.01 | -0.21 |
| *C. gilva - C. glauca* | WD | 0.93 | 0.76 | 0.86 |
| *C. gilva - C. myrsinaefolia* | LDMC | -0.74 | 0.05 | 0.42 |

Table 3: *(continued)*

| *Species pairname* | Trait | Light reduction (%) | Interspecific interactions (%) | Joint effect (%) |
|---|---|---|---|---|
| *C. gilva - C. myrsinaefolia* | SLA | 0.47 | -0.15 | 0.16 |
| *C. gilva - C. myrsinaefolia* | MLA | 0.03 | 0.08 | -0.25 |
| *C. gilva - C. myrsinaefolia* | WD | 0.13 | 0.21 | 0.36 |
| *C. gilva - C. sclerophylla* | LDMC | 0.02 | 0.01 | 0.12 |
| *C. gilva - C. sclerophylla* | SLA | -0.39 | -0.01 | 0.35 |
| *C. gilva - C. sclerophylla* | MLA | -0.49 | 0.15 | -0.34 |
| *C. gilva - C. sclerophylla* | WD | 0.12 | -0.25 | -0.95 |
| *C. gilva - C. sinensis* | LDMC | 0.18 | 0.05 | -0.07 |
| *C. gilva - C. sinensis* | SLA | 0.28 | -0.25 | -0.07 |
| *C. gilva - C. sinensis* | MLA | -0.03 | 0.00 | -0.09 |
| *C. gilva - C. sinensis* | WD | 0.52 | 0.37 | 0.49 |
| *C. gilva - H. acerba* | LDMC | -0.03 | 0.05 | 0.07 |
| *C. gilva - H. acerba* | SLA | 0.36 | 0.11 | 0.33 |
| *C. gilva - H. acerba* | MLA | 0.21 | 0.14 | 0.18 |
| *C. gilva - H. acerba* | WD | 0.75 | 0.77 | 0.73 |
| *C. gilva - L. glaber* | LDMC | -0.52 | 0.48 | -0.85 |
| *C. gilva - L. glaber* | SLA | 0.40 | -0.75 | 0.46 |
| *C. gilva - L. glaber* | MLA | 0.68 | 0.62 | 0.59 |
| *C. gilva - L. glaber* | WD | -0.55 | -0.70 | 0.00 |
| *C. gilva - L. harlandii* | LDMC | -0.32 | 0.02 | -0.51 |
| *C. gilva - L. harlandii* | SLA | 0.48 | 0.12 | 0.58 |
| *C. gilva - L. harlandii* | MLA | -0.01 | -0.10 | 0.10 |
| *C. gilva - L. harlandii* | WD | 0.50 | -0.91 | -0.56 |
| *C. gilva - Q. chenii* | LDMC | 0.92 | 0.98 | 0.95 |
| *C. gilva - Q. chenii* | SLA | -0.15 | 0.09 | -0.47 |
| *C. gilva - Q. chenii* | MLA | 0.23 | 0.15 | -0.78 |
| *C. gilva - Q. chenii* | WD | -0.95 | -0.22 | -0.20 |
| *C. gilva - U. changii* | LDMC | 0.48 | 0.09 | 0.24 |
| *C. gilva - U. changii* | SLA | 0.34 | 0.16 | 0.32 |
| *C. gilva - U. changii* | MLA | -0.44 | 0.15 | -0.33 |
| *C. gilva - U. changii* | WD | 0.66 | -0.12 | 0.07 |
| *C. glauca - C. myrsinaefolia* | LDMC | -0.63 | 0.23 | 0.09 |
| *C. glauca - C. myrsinaefolia* | SLA | 0.91 | 0.93 | 0.86 |
| *C. glauca - C. myrsinaefolia* | MLA | -0.44 | -0.74 | -0.31 |
| *C. glauca - C. myrsinaefolia* | WD | 0.33 | -0.42 | -0.85 |
| *C. glauca - C. sclerophylla* | LDMC | 0.77 | 0.70 | 0.56 |
| *C. glauca - C. sclerophylla* | SLA | 0.37 | 0.34 | 0.36 |
| *C. glauca - C. sclerophylla* | MLA | 0.11 | 0.17 | 0.20 |
| *C. glauca - C. sclerophylla* | WD | -0.71 | -0.56 | -0.49 |
| *C. glauca - C. sinensis* | LDMC | 0.26 | -0.06 | 0.28 |
| *C. glauca - C. sinensis* | SLA | 0.37 | 0.41 | 0.22 |
| *C. glauca - C. sinensis* | MLA | -0.02 | -0.27 | -0.04 |
| *C. glauca - C. sinensis* | WD | 0.35 | 0.05 | 0.37 |
| *C. glauca - H. acerba* | LDMC | 0.04 | 0.01 | 0.16 |
| *C. glauca - H. acerba* | SLA | 0.41 | 0.11 | 0.36 |
| *C. glauca - H. acerba* | MLA | 0.30 | -0.03 | 0.19 |
| *C. glauca - H. acerba* | WD | 0.60 | 0.72 | 0.76 |
| *C. glauca - L. glaber* | LDMC | -0.77 | -0.22 | 0.03 |
| *C. glauca - L. glaber* | SLA | 0.60 | 0.73 | 0.80 |
| *C. glauca - L. glaber* | MLA | -0.36 | 0.02 | -0.07 |

Table 3: *(continued)*

| *Species pairname* | Trait | Light reduction (%) | Interspecific interactions (%) | Joint effect (%) |
|---|---|---|---|---|
| *C. glauca - L. glaber* | WD | -0.01 | 0.20 | 0.14 |
| *C. glauca - L. harlandii* | LDMC | 0.07 | 0.16 | 0.53 |
| *C. glauca - L. harlandii* | SLA | -0.02 | 0.07 | 0.00 |
| *C. glauca - L. harlandii* | MLA | 0.10 | 0.07 | 0.14 |
| *C. glauca - L. harlandii* | WD | -0.38 | -0.35 | 0.07 |
| *C. glauca - Q. chenii* | LDMC | 0.00 | 0.31 | 0.17 |
| *C. glauca - Q. chenii* | SLA | 0.15 | 0.02 | 0.04 |
| *C. glauca - Q. chenii* | MLA | -0.62 | -0.01 | -0.47 |
| *C. glauca - Q. chenii* | WD | 0.02 | 0.03 | -0.10 |
| *C. glauca - U. changii* | LDMC | 0.60 | 0.22 | 0.61 |
| *C. glauca - U. changii* | SLA | 0.38 | -0.11 | 0.50 |
| *C. glauca - U. changii* | MLA | -0.56 | 0.16 | -0.47 |
| *C. glauca - U. changii* | WD | 0.06 | 0.07 | -0.55 |
| *C. myrsinaefolia - C. sclerophylla* | LDMC | 0.49 | 0.21 | 0.41 |
| *C. myrsinaefolia - C. sclerophylla* | SLA | 0.21 | -0.20 | -0.05 |
| *C. myrsinaefolia - C. sclerophylla* | MLA | 0.08 | 0.37 | -0.72 |
| *C. myrsinaefolia - C. sclerophylla* | WD | 0.12 | -0.59 | 0.08 |
| *C. myrsinaefolia - C. sinensis* | LDMC | 0.23 | 0.14 | 0.29 |
| *C. myrsinaefolia - C. sinensis* | SLA | 0.32 | -0.24 | 0.24 |
| *C. myrsinaefolia - C. sinensis* | MLA | -0.04 | -0.13 | -0.33 |
| *C. myrsinaefolia - C. sinensis* | WD | 0.34 | -0.22 | 0.45 |
| *C. myrsinaefolia - H. acerba* | LDMC | 0.01 | -0.08 | 0.06 |
| *C. myrsinaefolia - H. acerba* | SLA | 0.37 | -0.07 | 0.19 |
| *C. myrsinaefolia - H. acerba* | MLA | 0.23 | -0.01 | 0.12 |
| *C. myrsinaefolia - H. acerba* | WD | 0.96 | 0.95 | 0.93 |
| *C. myrsinaefolia - L. glaber* | LDMC | -0.50 | -0.59 | -0.43 |
| *C. myrsinaefolia - L. glaber* | SLA | -0.02 | 0.36 | 0.62 |
| *C. myrsinaefolia - L. glaber* | MLA | -0.26 | 0.29 | -0.42 |
| *C. myrsinaefolia - L. glaber* | WD | -0.45 | 0.28 | 0.04 |
| *C. myrsinaefolia - L. harlandii* | LDMC | -0.13 | 0.29 | 0.22 |
| *C. myrsinaefolia - L. harlandii* | SLA | 0.50 | -0.39 | 0.18 |
| *C. myrsinaefolia - L. harlandii* | MLA | -0.02 | -0.15 | -0.10 |
| *C. myrsinaefolia - L. harlandii* | WD | 0.83 | 0.41 | 0.49 |
| *C. myrsinaefolia - Q. chenii* | LDMC | 0.19 | 0.11 | 0.02 |
| *C. myrsinaefolia - Q. chenii* | SLA | 0.05 | -0.13 | -0.28 |
| *C. myrsinaefolia - Q. chenii* | MLA | -0.15 | 0.29 | 0.24 |
| *C. myrsinaefolia - Q. chenii* | WD | -0.21 | -0.10 | 0.13 |
| *C. myrsinaefolia - U. changii* | LDMC | 0.56 | 0.22 | 0.43 |
| *C. myrsinaefolia - U. changii* | SLA | 0.36 | -0.09 | 0.24 |
| *C. myrsinaefolia - U. changii* | MLA | -0.54 | 0.10 | -0.37 |
| *C. myrsinaefolia - U. changii* | WD | 0.85 | 0.67 | 0.82 |
| *C. sclerophylla - C. sinensis* | LDMC | 0.33 | 0.20 | 0.31 |
| *C. sclerophylla - C. sinensis* | SLA | 0.37 | 0.17 | 0.51 |
| *C. sclerophylla - C. sinensis* | MLA | -0.02 | -0.11 | -0.16 |
| *C. sclerophylla - C. sinensis* | WD | 0.01 | 0.09 | 0.18 |
| *C. sclerophylla - H. acerba* | LDMC | 0.13 | -0.16 | -0.13 |
| *C. sclerophylla - H. acerba* | SLA | 0.42 | -0.09 | 0.24 |
| *C. sclerophylla - H. acerba* | MLA | 0.28 | 0.21 | 0.24 |
| *C. sclerophylla - H. acerba* | WD | 0.18 | 0.52 | 0.45 |
| *C. sclerophylla - L. glaber* | LDMC | 0.09 | -0.54 | 0.33 |

Table 3: *(continued)*

| *Species pairname* | Trait | Light reduction (%) | Interspecific interactions (%) | Joint effect (%) |
|---|---|---|---|---|
| *C. sclerophylla - L. glaber* | SLA | 0.19 | 0.01 | -0.90 |
| *C. sclerophylla - L. glaber* | MLA | -0.96 | 0.14 | -0.80 |
| *C. sclerophylla - L. glaber* | WD | 0.83 | 0.37 | 0.71 |
| *C. sclerophylla - L. harlandii* | LDMC | 0.57 | -0.07 | 0.46 |
| *C. sclerophylla - L. harlandii* | SLA | 0.31 | 0.24 | 0.06 |
| *C. sclerophylla - L. harlandii* | MLA | 0.11 | -0.03 | 0.01 |
| *C. sclerophylla - L. harlandii* | WD | -0.95 | -0.23 | -0.23 |
| *C. sclerophylla - Q. chenii* | LDMC | -0.68 | -0.44 | 0.65 |
| *C. sclerophylla - Q. chenii* | SLA | -0.09 | -0.14 | -0.60 |
| *C. sclerophylla - Q. chenii* | MLA | 0.02 | -0.57 | 0.20 |
| *C. sclerophylla - Q. chenii* | WD | 0.81 | 0.14 | 0.42 |
| *C. sclerophylla - U. changii* | LDMC | 0.65 | 0.11 | 0.52 |
| *C. sclerophylla - U. changii* | SLA | 0.38 | 0.07 | 0.51 |
| *C. sclerophylla - U. changii* | MLA | -0.43 | -0.06 | -0.27 |
| *C. sclerophylla - U. changii* | WD | -0.73 | 0.28 | 0.14 |
| *C. sinensis - H. acerba* | LDMC | 0.48 | -0.66 | NaN |
| *C. sinensis - H. acerba* | SLA | 0.50 | -0.08 | NaN |
| *C. sinensis - H. acerba* | MLA | -0.21 | -0.38 | NaN |
| *C. sinensis - H. acerba* | WD | -0.09 | 0.07 | -0.35 |
| *C. sinensis - L. glaber* | LDMC | 0.20 | 0.07 | 0.29 |
| *C. sinensis - L. glaber* | SLA | 0.31 | -0.14 | 0.23 |
| *C. sinensis - L. glaber* | MLA | -0.04 | 0.00 | 0.07 |
| *C. sinensis - L. glaber* | WD | 0.23 | 0.24 | 0.19 |
| *C. sinensis - L. harlandii* | LDMC | 0.28 | 0.15 | 0.20 |
| *C. sinensis - L. harlandii* | SLA | 0.35 | 0.24 | 0.30 |
| *C. sinensis - L. harlandii* | MLA | -0.04 | -0.25 | 0.20 |
| *C. sinensis - L. harlandii* | WD | 0.17 | -0.05 | 0.18 |
| *C. sinensis - Q. chenii* | LDMC | 0.23 | 0.08 | 0.30 |
| *C. sinensis - Q. chenii* | SLA | 0.89 | 0.88 | 0.86 |
| *C. sinensis - Q. chenii* | MLA | -0.04 | -0.28 | -0.07 |
| *C. sinensis - Q. chenii* | WD | 0.22 | 0.08 | 0.14 |
| *C. sinensis - U. changii* | LDMC | -0.94 | 0.23 | NaN |
| *C. sinensis - U. changii* | SLA | 0.39 | -0.48 | NaN |
| *C. sinensis - U. changii* | MLA | 0.09 | -0.60 | NaN |
| *C. sinensis - U. changii* | WD | 0.19 | 0.18 | 0.22 |
| *H. acerba - L. glaber* | LDMC | -0.01 | 0.11 | -0.02 |
| *H. acerba - L. glaber* | SLA | 0.36 | 0.01 | 0.19 |
| *H. acerba - L. glaber* | MLA | 0.20 | 0.19 | 0.22 |
| *H. acerba - L. glaber* | WD | 0.55 | 0.60 | 0.31 |
| *H. acerba - L. harlandii* | LDMC | 0.03 | -0.01 | 0.11 |
| *H. acerba - L. harlandii* | SLA | 0.39 | 0.11 | 0.38 |
| *H. acerba - L. harlandii* | MLA | 0.41 | 0.16 | 0.52 |
| *H. acerba - L. harlandii* | WD | 0.79 | 0.86 | 0.81 |
| *H. acerba - Q. chenii* | LDMC | 0.03 | -0.09 | 0.16 |
| *H. acerba - Q. chenii* | SLA | 0.66 | 0.03 | 0.60 |
| *H. acerba - Q. chenii* | MLA | 0.21 | 0.15 | 0.14 |
| *H. acerba - Q. chenii* | WD | 0.47 | 0.37 | 0.43 |
| *H. acerba - U. changii* | LDMC | -0.21 | -0.08 | -0.77 |
| *H. acerba - U. changii* | SLA | 0.31 | 0.57 | 0.54 |
| *H. acerba - U. changii* | MLA | 0.96 | 0.96 | 0.95 |

Table 3: *(continued)*

| *Species pairname* | Trait | Light reduction (%) | Interspecific interactions (%) | Joint effect (%) |
|---|---|---|---|---|
| *H. acerba - U. changii* | WD | 0.92 | 0.95 | 0.87 |
| *L. glaber - L. harlandii* | LDMC | -0.23 | 0.02 | -0.01 |
| *L. glaber - L. harlandii* | SLA | 0.67 | 0.65 | 0.85 |
| *L. glaber - L. harlandii* | MLA | -0.05 | 0.10 | 0.02 |
| *L. glaber - L. harlandii* | WD | 0.38 | 0.24 | 0.51 |
| *L. glaber - Q. chenii* | LDMC | 0.58 | 0.65 | 0.46 |
| *L. glaber - Q. chenii* | SLA | 0.05 | -0.65 | 0.13 |
| *L. glaber - Q. chenii* | MLA | 0.01 | 0.11 | -0.17 |
| *L. glaber - Q. chenii* | WD | 0.11 | -0.41 | 0.41 |
| *L. glaber - U. changii* | LDMC | 0.50 | -0.10 | 0.40 |
| *L. glaber - U. changii* | SLA | 0.35 | 0.03 | 0.41 |
| *L. glaber - U. changii* | MLA | -0.50 | 0.09 | -0.39 |
| *L. glaber - U. changii* | WD | 0.29 | 0.01 | 0.43 |
| *L. harlandii - Q. chenii* | LDMC | 0.03 | -0.14 | 0.11 |
| *L. harlandii - Q. chenii* | SLA | 0.13 | 0.12 | 0.25 |
| *L. harlandii - Q. chenii* | MLA | -0.06 | -0.11 | -0.01 |
| *L. harlandii - Q. chenii* | WD | 0.31 | 0.28 | 0.28 |
| *L. harlandii - U. changii* | LDMC | 0.67 | 0.48 | 0.68 |
| *L. harlandii - U. changii* | SLA | 0.37 | 0.01 | 0.48 |
| *L. harlandii - U. changii* | MLA | -0.34 | 0.36 | -0.66 |
| *L. harlandii - U. changii* | WD | -0.21 | -0.52 | 0.66 |
| *Q. chenii - U. changii* | LDMC | 0.51 | 0.20 | 0.36 |
| *Q. chenii - U. changii* | SLA | 0.51 | 0.09 | 0.59 |
| *Q. chenii - U. changii* | MLA | -0.57 | 0.21 | -0.41 |
| *Q. chenii - U. changii* | WD | 0.25 | 0.02 | 0.24 |

* SLA: specific leaf area; LDMC: leaf dry mass content, MLA: mean leaf area; WD: wood density

† .:<0.1;*: <0.05; **: <0.01; ***: <0.001

**Figure S1.**

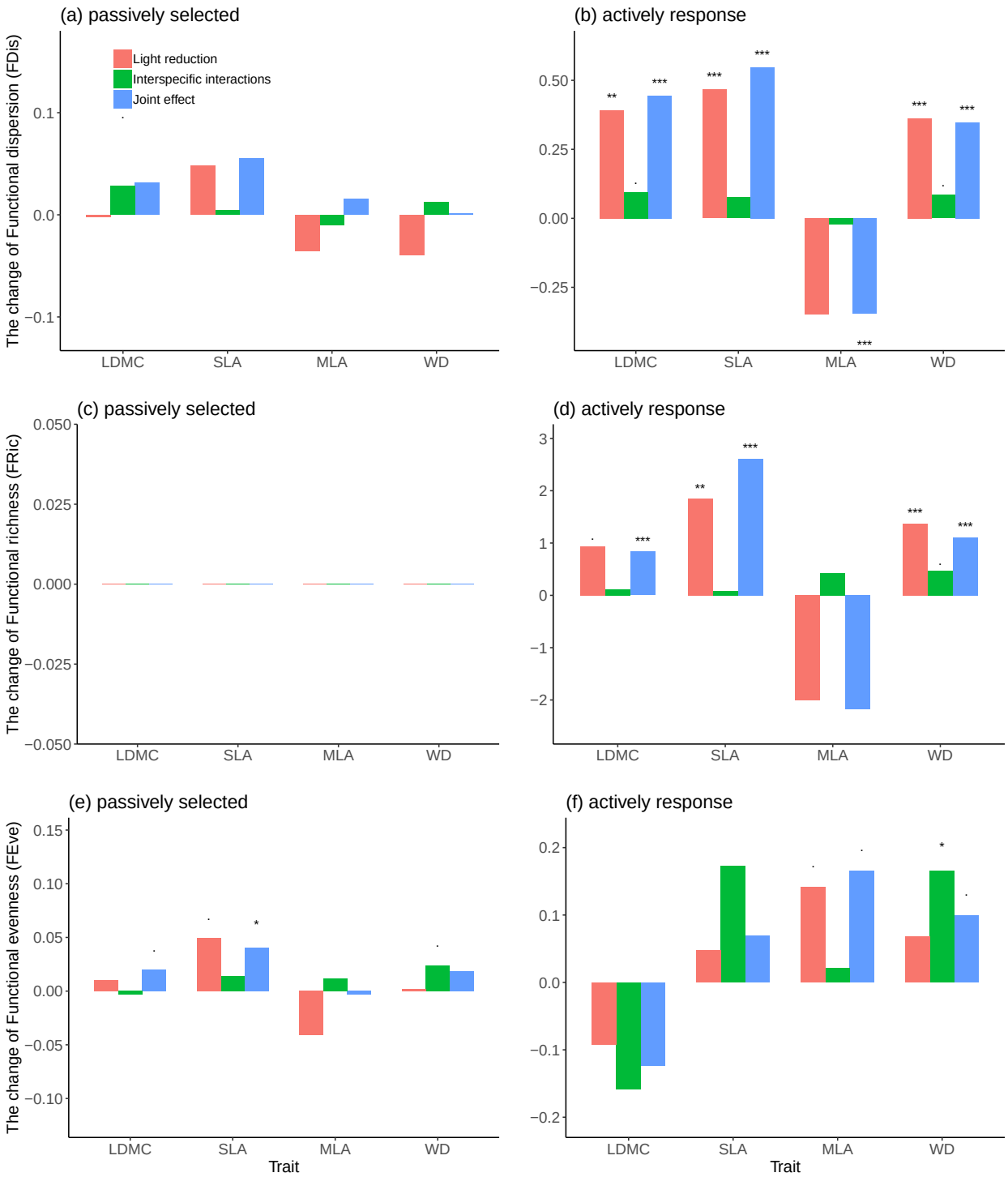


**Figure S1.** The change of community-level function diversity includes FDis (A)(B), FRic(C)(D) and FEve(E)(F) to light reduction, interspecific interactions and their joint effect for specific leaf area (SLA), leaf dry mass content (LDMC), mean leaf area (MLA), wood density (WD) and height in the absence of trait response (left panel) and in the presence of trait response (right panel) (:<0.1;∗: <0.05; ∗∗: <0.01; ∗ ∗ ∗: <0.001).

**Figure S2.**

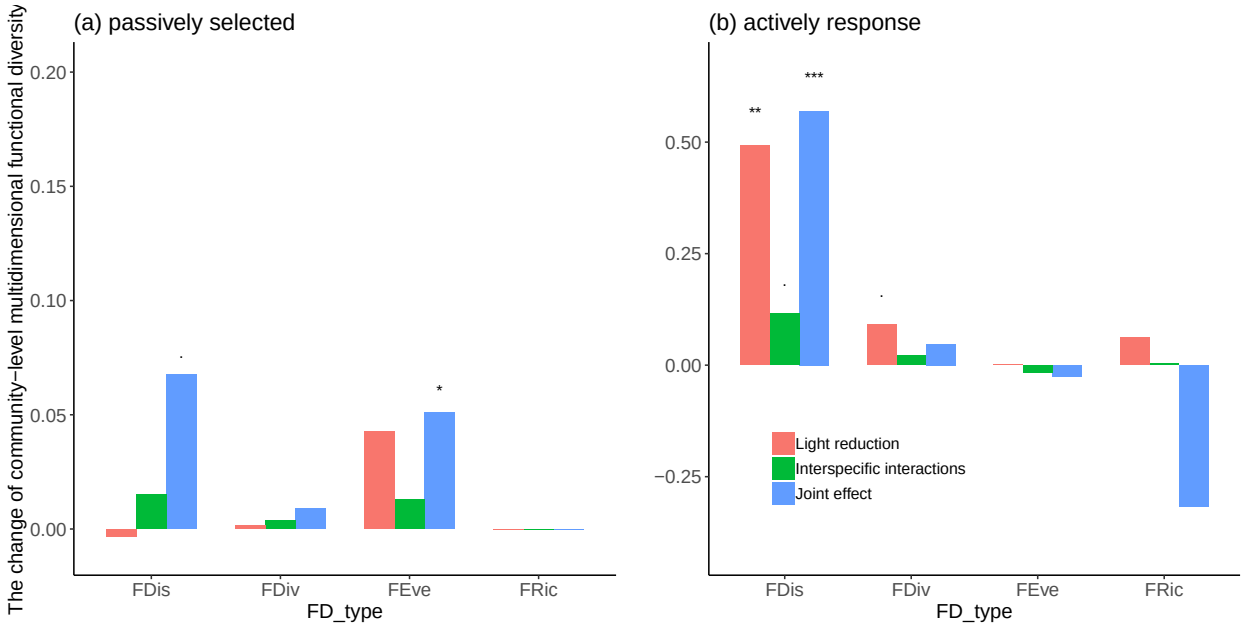


**Figure S2.** The change of community-level multidimensional function diversity to light reduction, interspecific interactions and their joint effect for specific leaf area (SLA), leaf dry mass content (LDMC), mean leaf area (MLA), wood density (WD) and height in the absence of trait response (A) and in the presence of trait response (B) (:<0.1;∗: <0.05; ∗∗: <0.01; ∗ ∗ ∗: <0.001).