Supplementary information for the article

Kosanović, D.; Grogan, H.; Kavanagh, K. Exposure of Agaricus Bisporus to Trichoderma Aggressivum f. Europaeum Leads to Growth Inhibition and Induction of an Oxidative Stress Response. Fungal Biology 2020, 124 (9), 814–820. https://doi.org/10.1016/j.funbio.2020.07.003.

Figure S1. Produce Phase III substrate which was heavily colonised by *T. aggressivum* and used as inoculum for subsequent experiment.

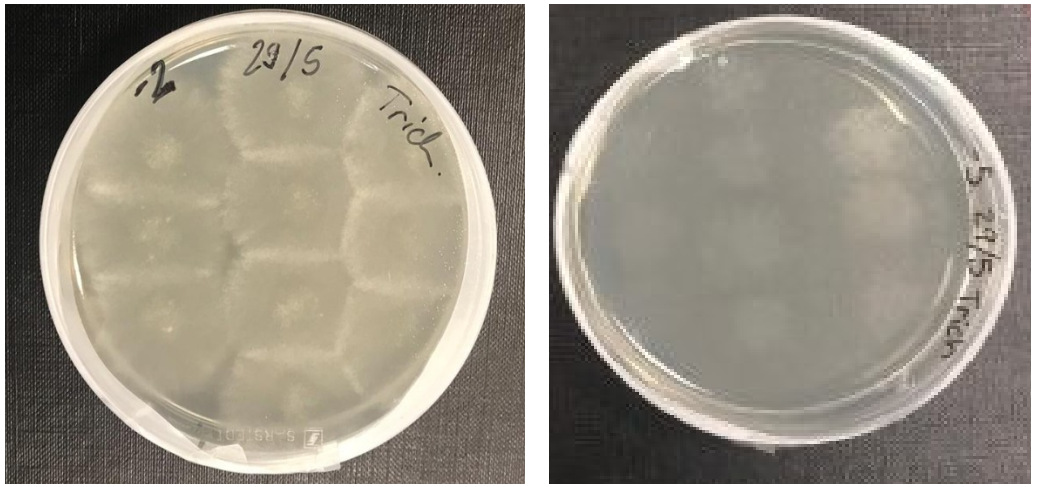


Figure S2. Most probable number (MPN) analysis results, a) -2 dilution level, b) -5 dilution level.

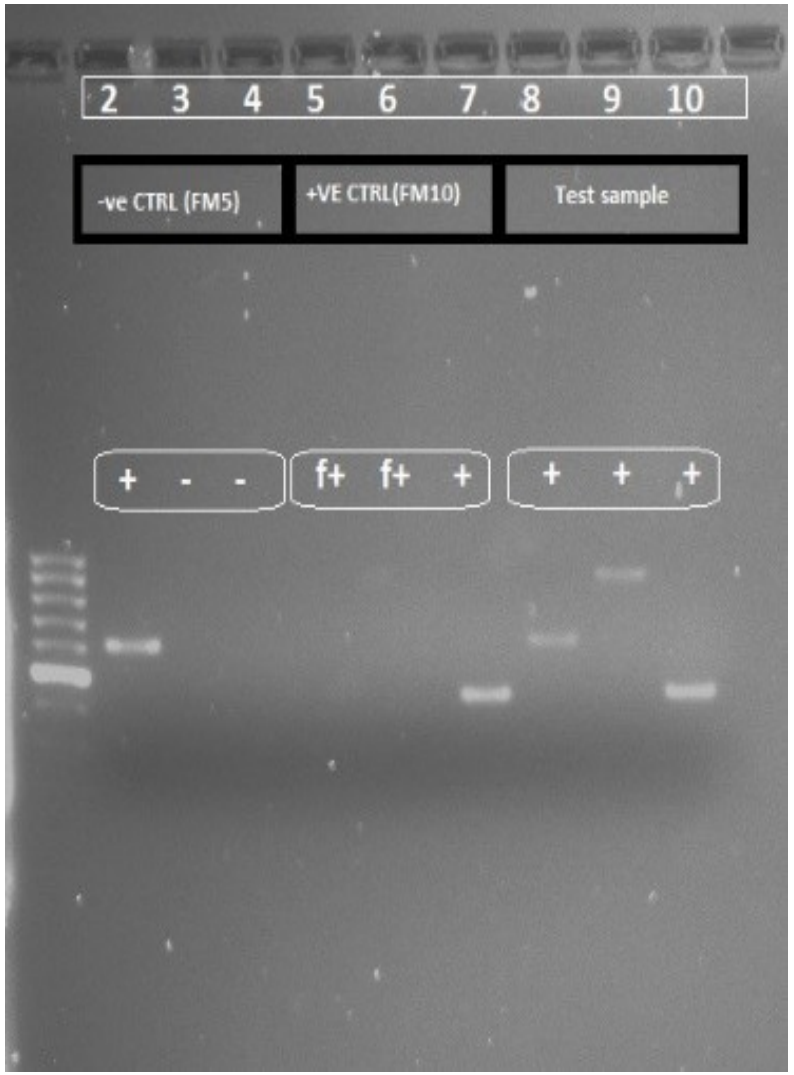


Figure S3. PCR verification of *T. aggressivum* f. *europaeum*. Wells 2,3,4 are negativeve control (culture FM5 *T. harzianum*). Wells 5,6,7 are *T. aggressivum* FM10. Wells 6,7 are very faint in the image unfortunately, but they were on the gel. We can still slightly see them. Sample CBS 100526 is in wells 8,9,10 and they are all clearly positive. Well 8 is *Trichoderma* universal (ITS1/4 primers), well 9 is for both Th2/Th4 biotypes (TH1 INT/ITS4 primers). Th2 biotype is *T. aggressivum* f. *europaeum*, Th4 biotype is *T. aggressivum* f. *aggressivum,* and in well 10 is Th2 biotype specific (i.e. *T. aggressivum* f. *europium,* 18S/TH1 INT REV primers).

18S INT – 5’TAA CAA CAC GCC TGC TTA AGA’3

TH1 INT REV – 5’GAG AAG GCT CAG ATA GTA AAA AAT’3

TH1 INT – 5’CCC CCT CGC GGG GTT ATT TTT ACT’3

EX ITS1 – 5’GTA ACA AGG TTT CCG TAG GTG’3

EX ITS4 – 5’TTC TTT TCC TCC GCT TAT TGA TTG’3

Figure S4. Principal component analysis (PCA statistical procedure). ▫ - *T. aggressivum* group and ▫ - Control group.

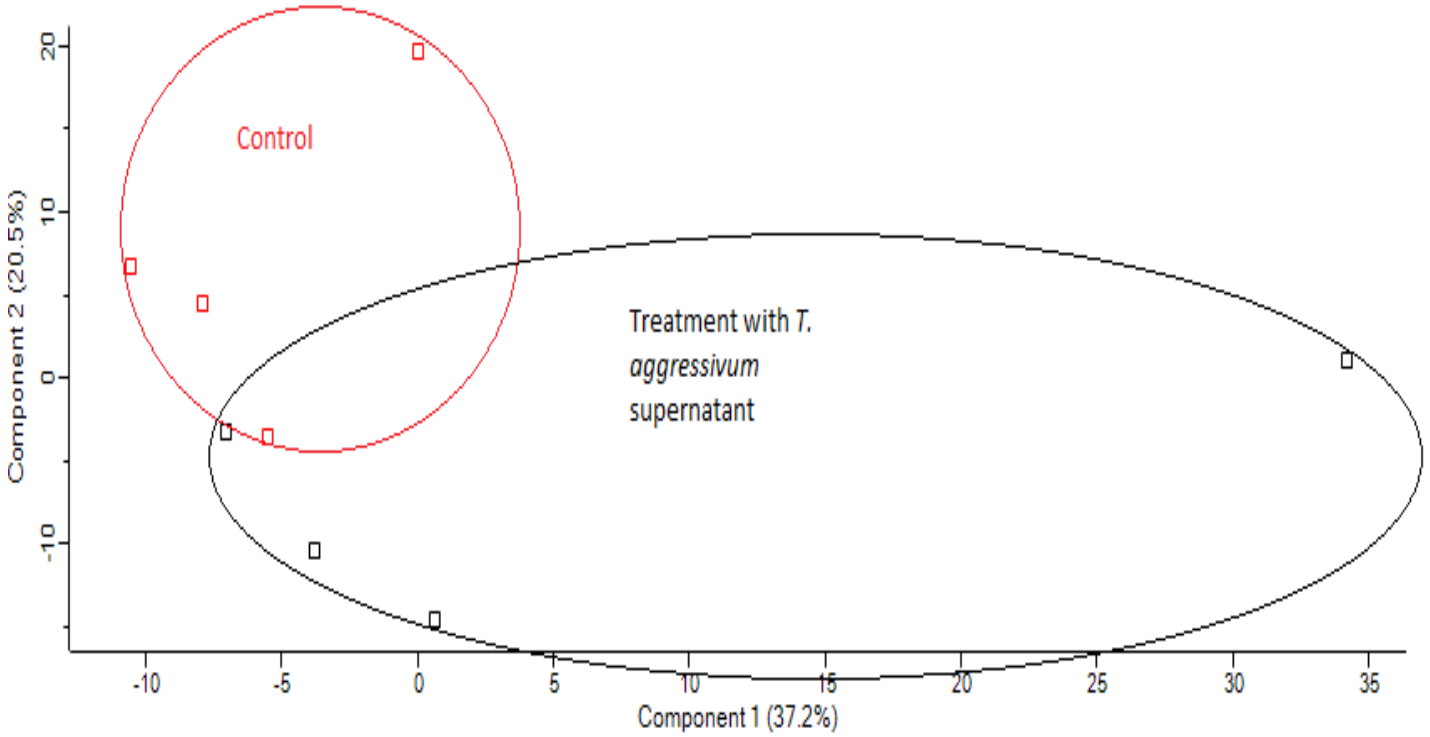


Figure S5 a. Increase/Decrease in biological processes in *A. bisporus* after 4 days treatment with *T. aggressivum* 48h supernatant.

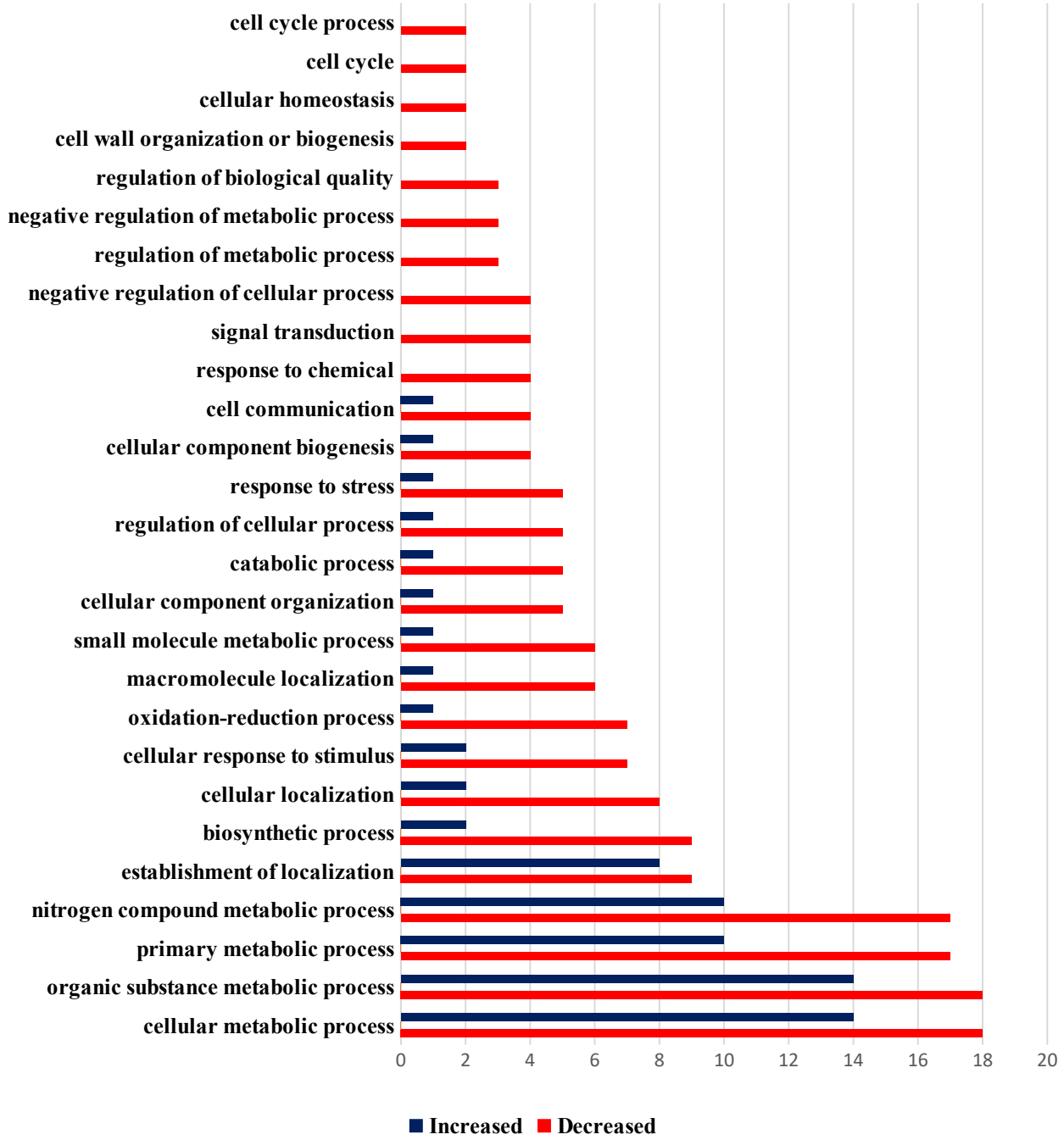


Figure S5 b. Increase/Decrease in molecular function in *A. bisporus* after 4 days treatment with *T. aggressivum* 48h supernatant.

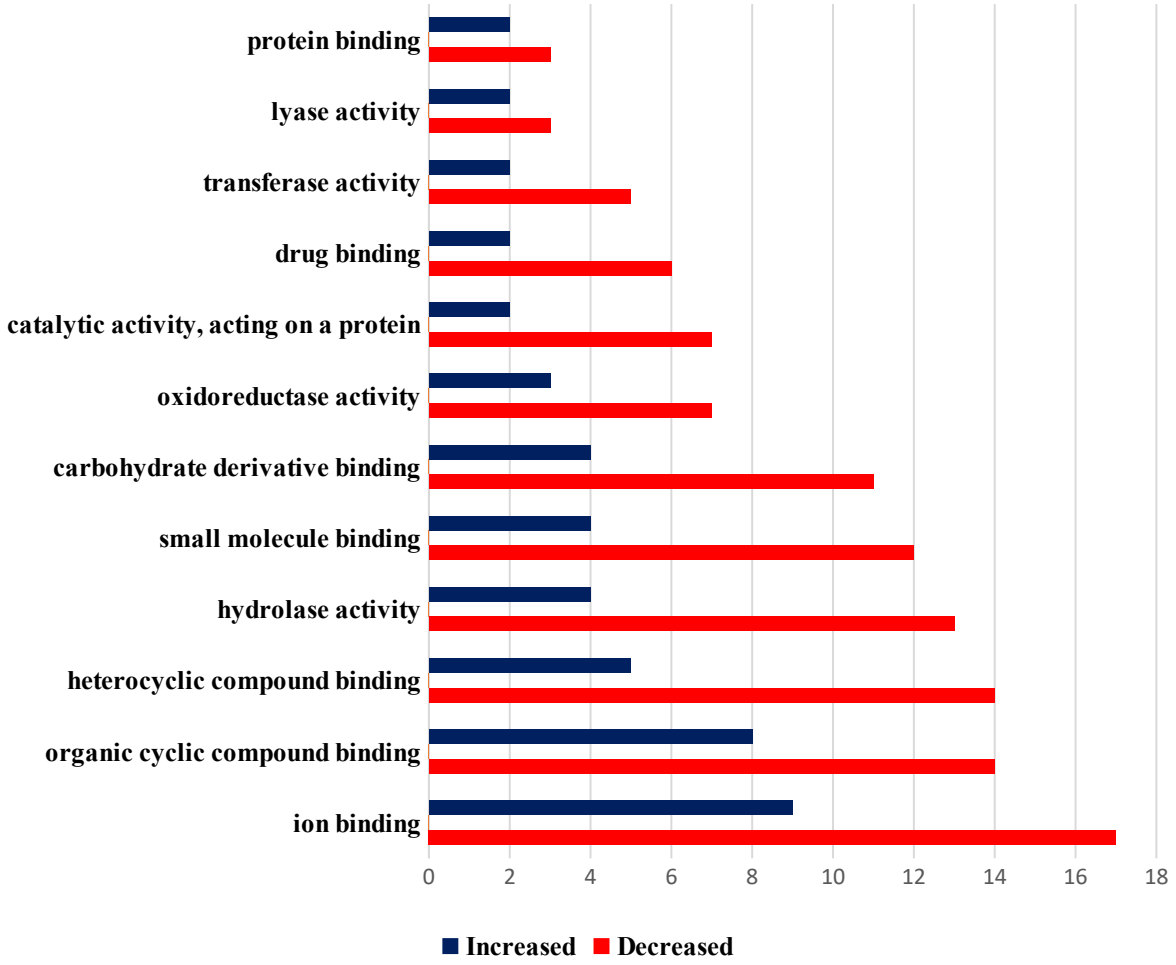


Figure S5 c. Increased/decreased cellular components in *A. bisporus* after 4 day treatment with *T. aggressivum* 48h supernatant.

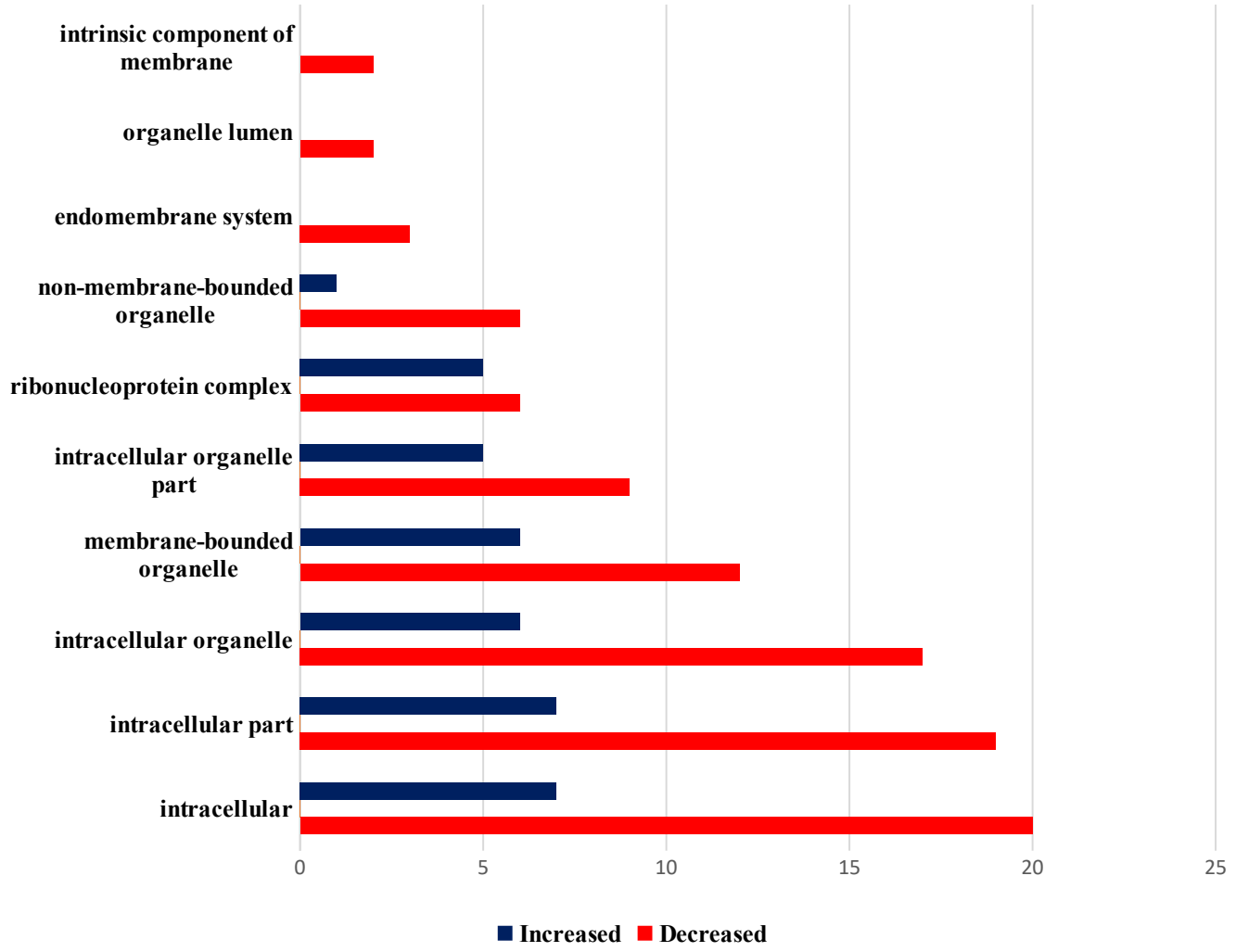


Figure S5 d. Increase/decrease in enzyme activity of *A. bisporus* after 4 day of treatment with 48h *T. aggressivum* supernatant.

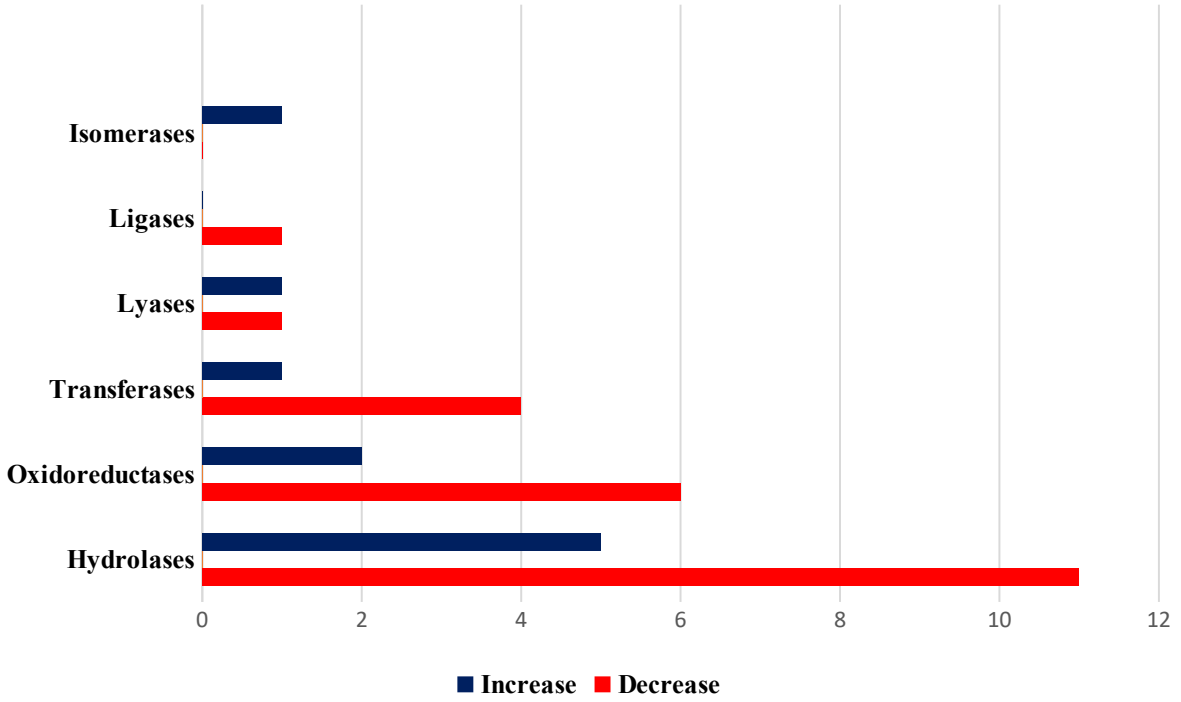


Figure S6. Green mold was observed on the mushroom casing of inoculated plots (c:10^{-3} and b:10^{-4}), but not on the control plots (a). Starting from day 14th dense white mycelia was observed, after few days the color changed into green after extensive sporulation (b, c).

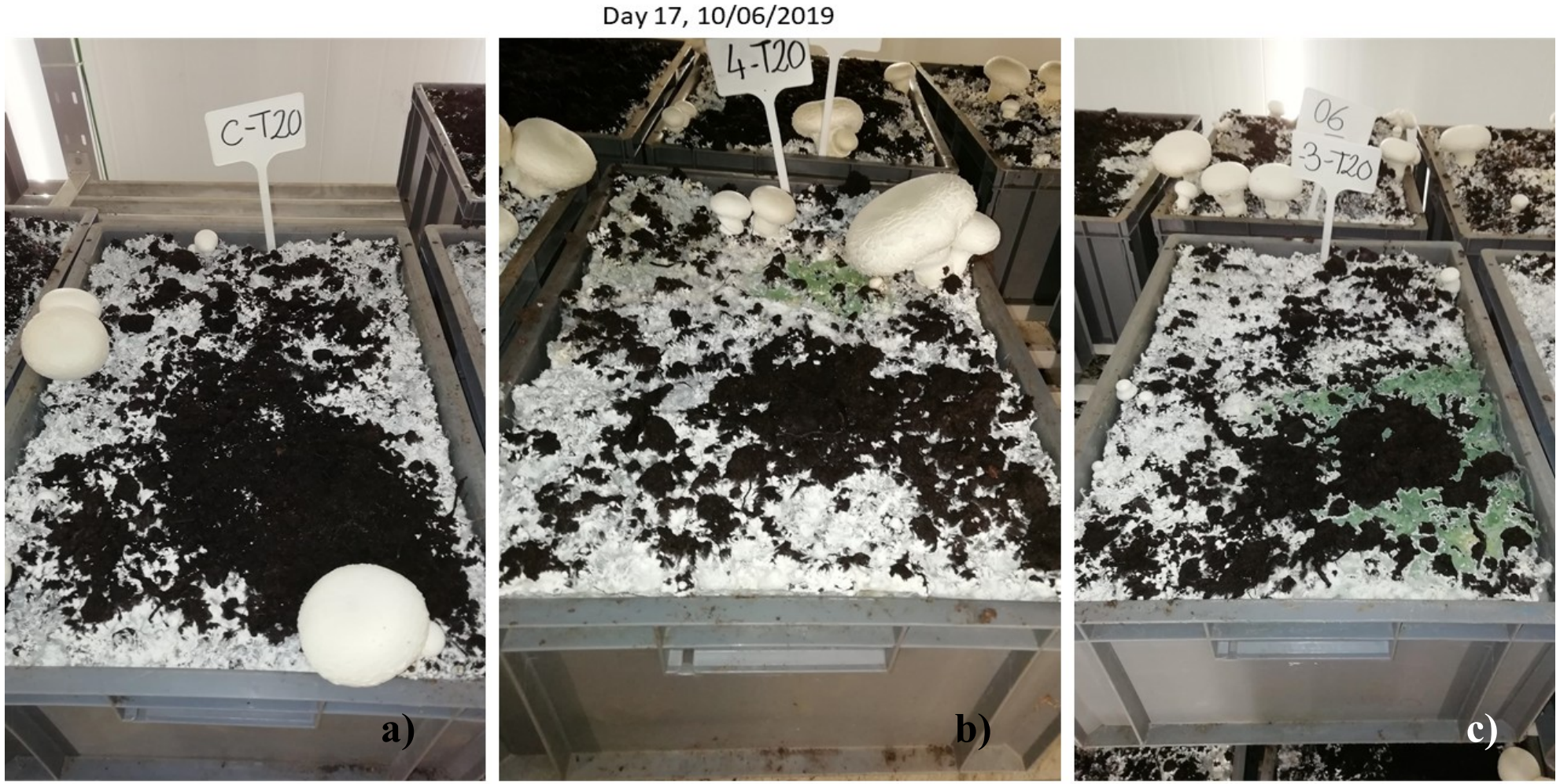


Figure S7. Symptoms of green mould (deformities of sporocarp and brown spots) on fruiting body on day 17th after casing the compost.

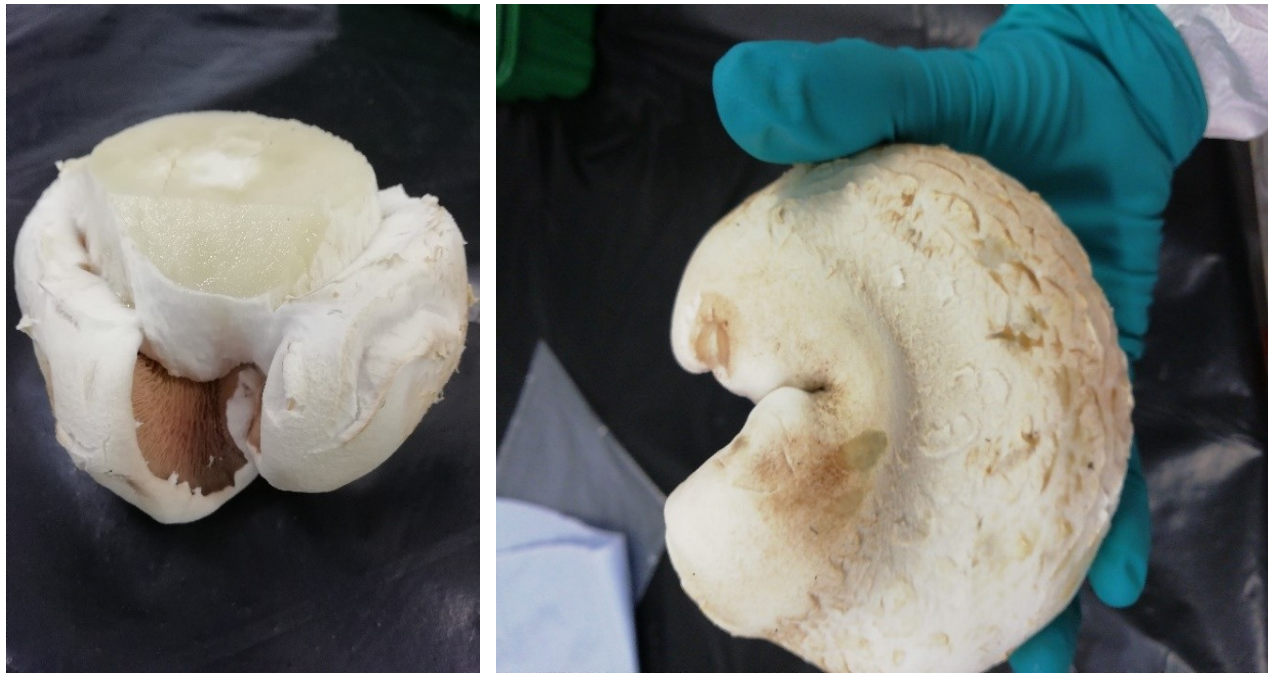


Table S1. Colorimetry assay on mushroom pilei in infected or controlled plots.

	Control	**10^{-3}**	**10^{-4}**
ΔE±SE	7.9±0.2	8.2±0.6	8.0±0.5

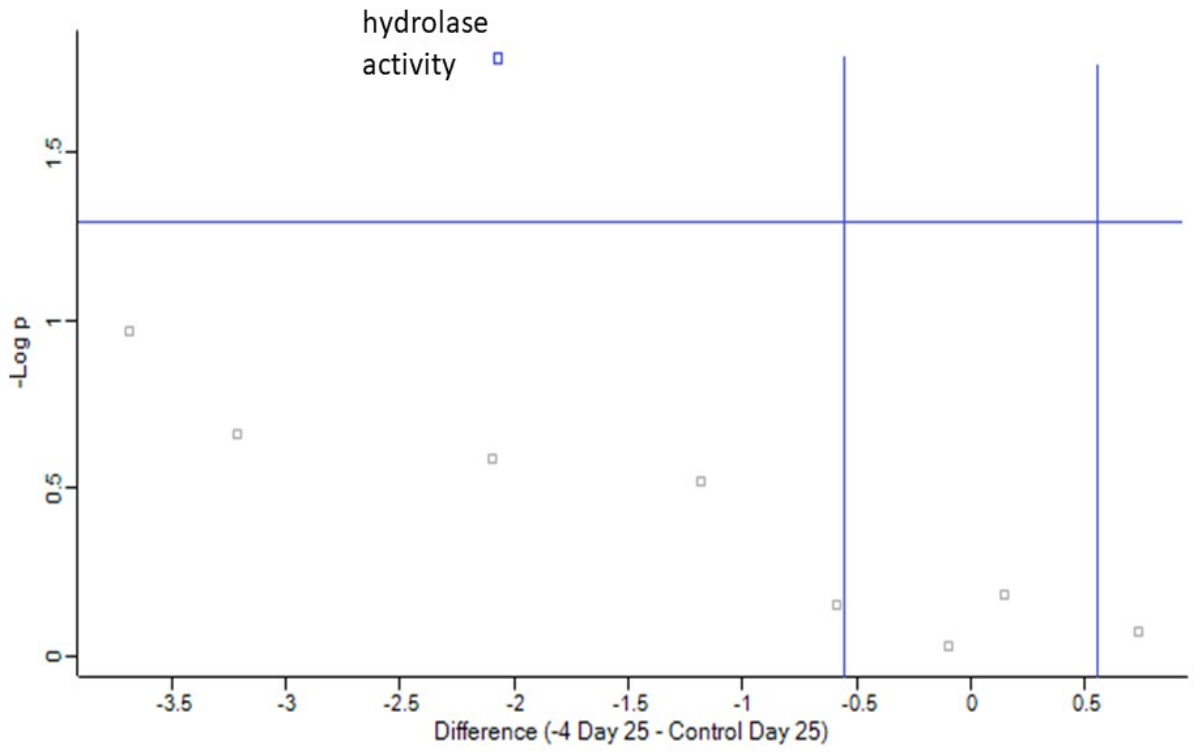


Figure S8. Proteomic responses of *A. bisporus* following 25-day incubation with 10^{-4} inoculum of *T. aggressivum*. Volcano plot represent protein intensity difference (− log2 mean intensity difference) and significance in differences (− log P-value) based on a two-sided t-test. Proteins above the line are considered statistically significant (p value < 0.05) and those to the right and left of the vertical lines indicate relative fold changes > 1.5. Annotations are given for the most differentially abundant proteins identified. These plots are based upon post imputed data.

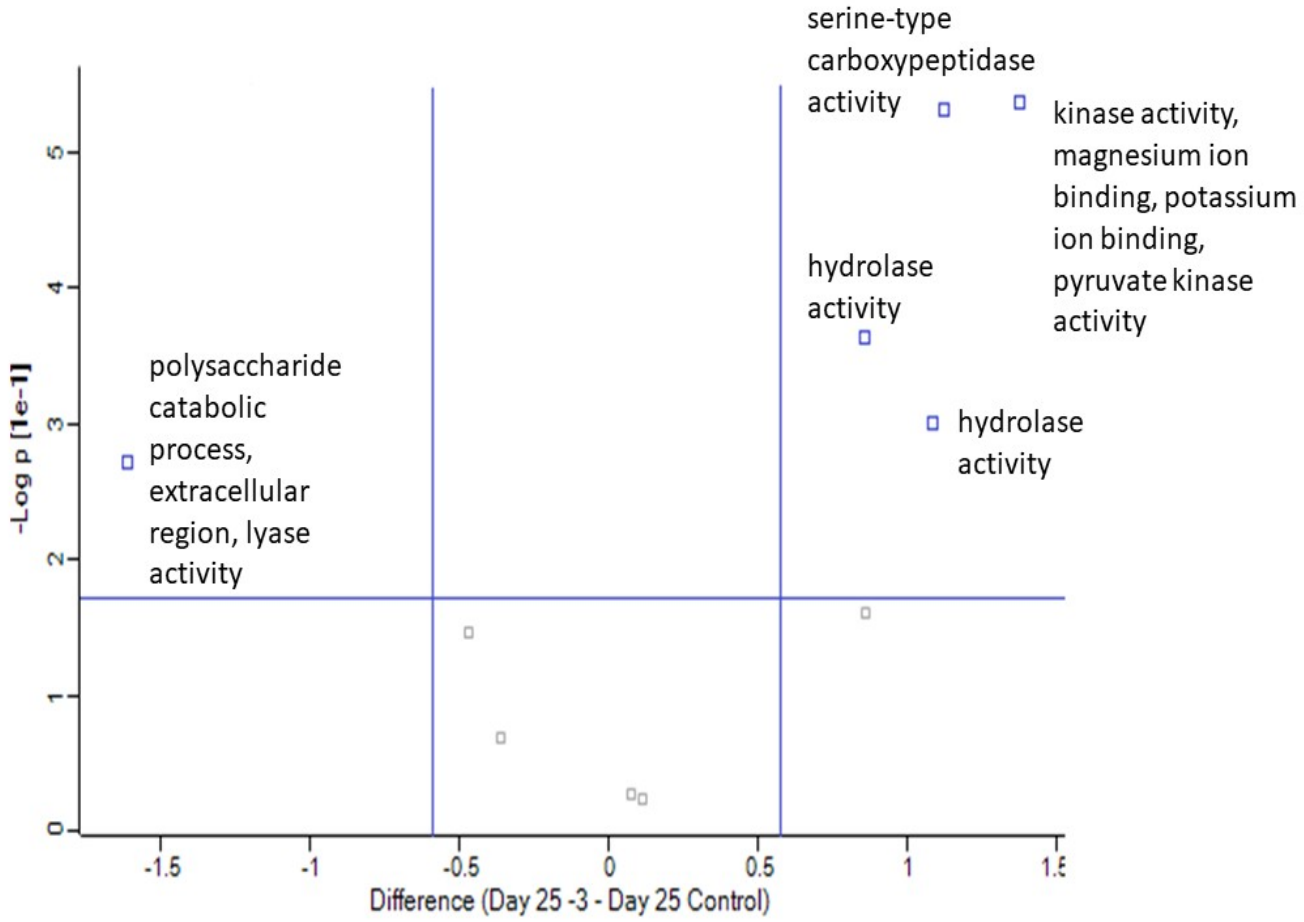


Figure S9. Proteomic responses of *A. bisporus* following 25-day incubation with -3 inoculum of *T. aggressivum*. Volcano plot represent protein intensity difference (− log2 mean intensity difference) and significance in differences (− log P-value) based on a two-sided t-test. Proteins above the line are considered statistically significant (p value < 0.05) and those to the right and left of the vertical lines indicate relative fold changes > 1.5. Annotations are given for the most differentially abundant proteins identified. These plots are based upon post imputed data.

Figure S10 a. Increased molecular function 25 days after *A. bisporus* inoculation with *T. aggressivum*.

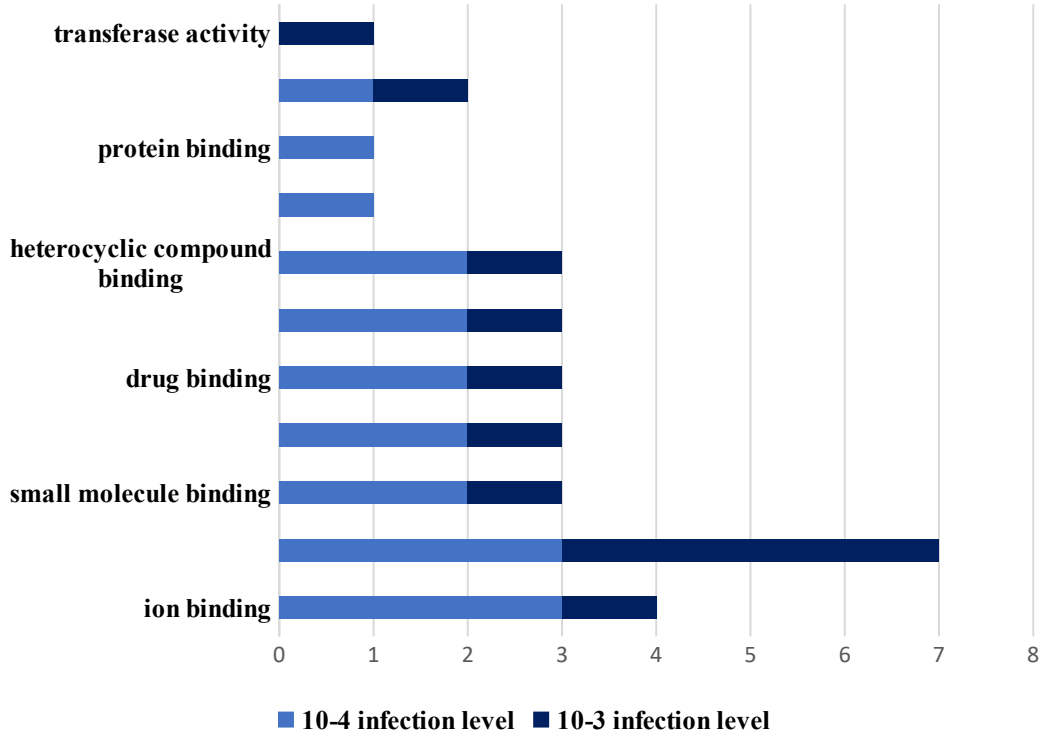


Figure S10 b. Increased cellular component day 24 after *A. bisporus* inoculation with *T. aggressivum*.

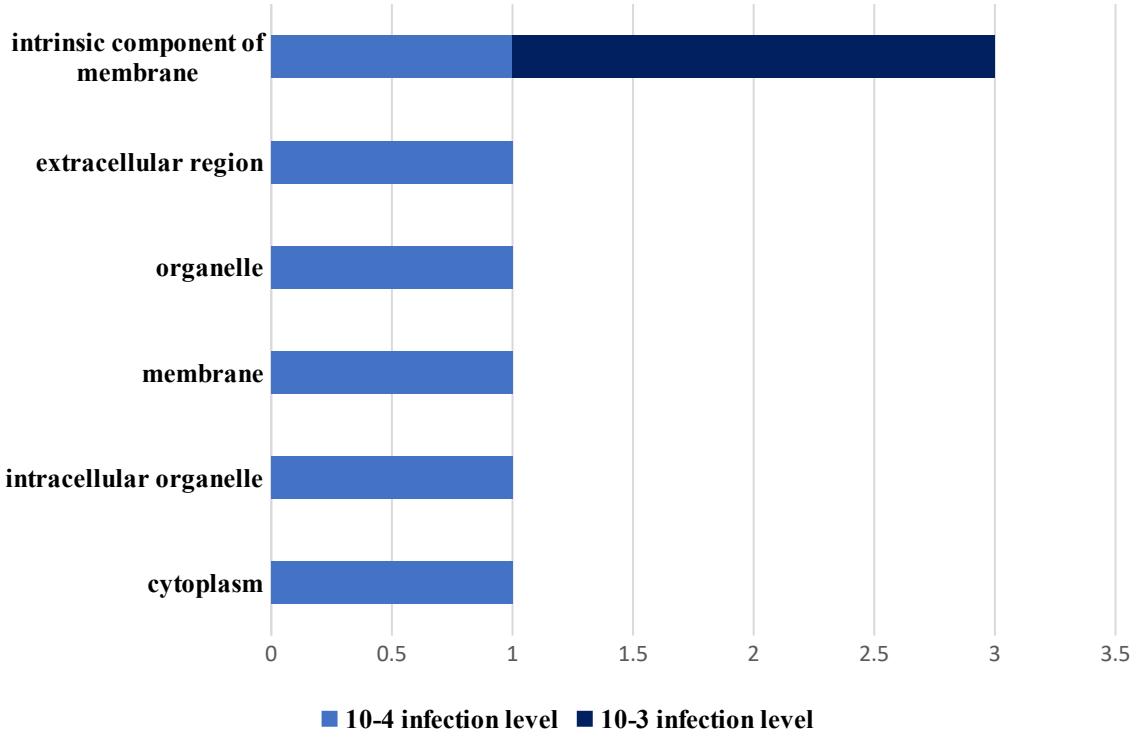
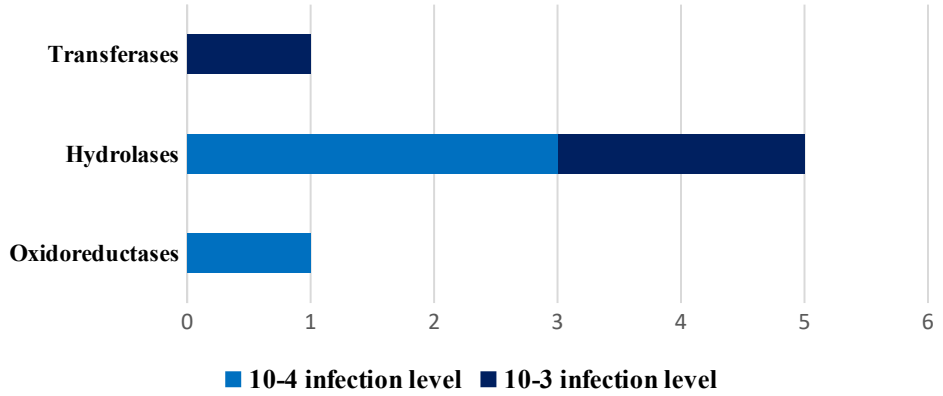


Figure S10 c. Increased enzymes day 25 after inoculation of *A. bisporus* with *T. aggressivum*.



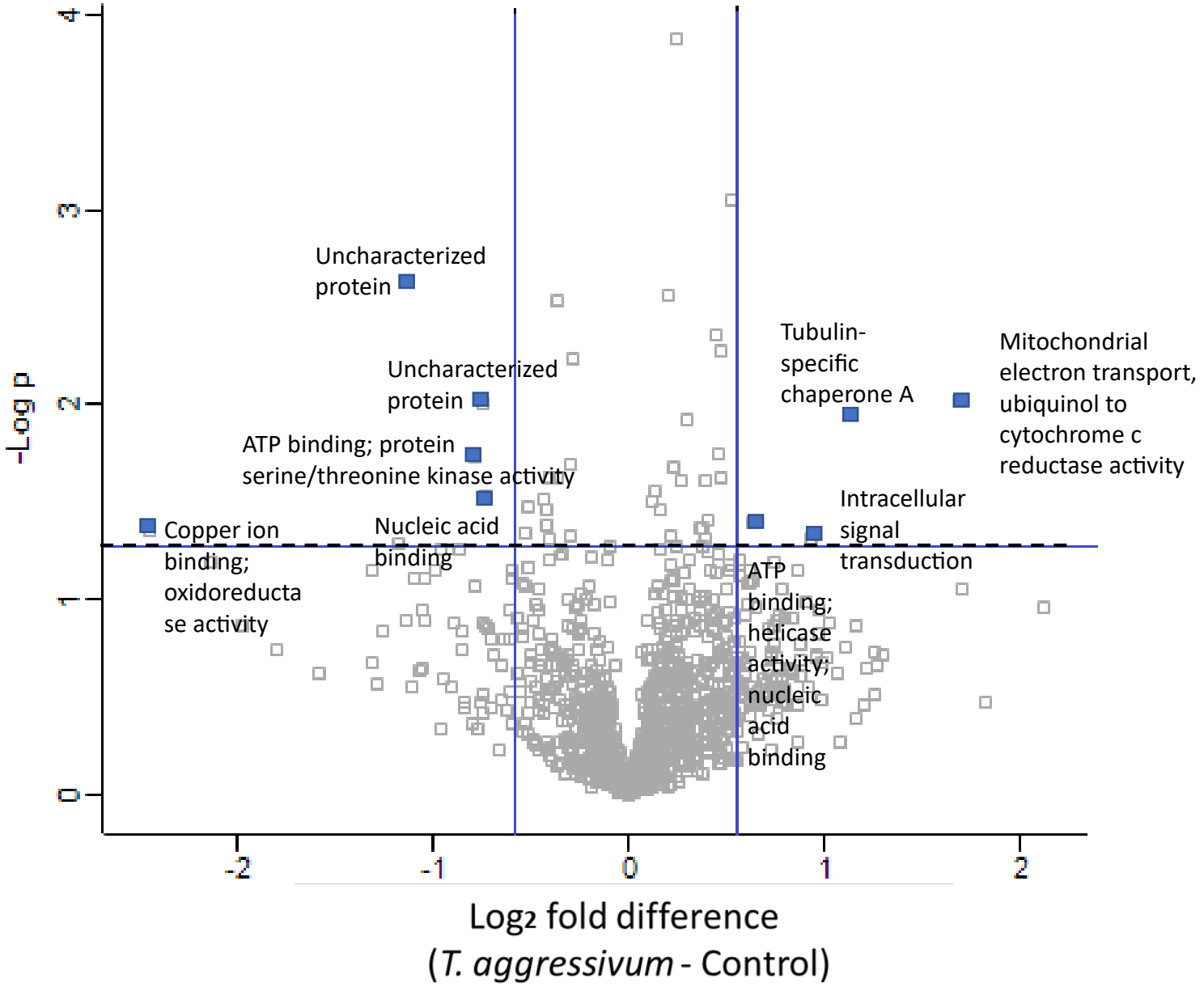


Figure S11a. Proteomic responses of *A. bisporus* following **2 day** incubation with 25% v/v 48h supernatant of *T. aggressivum*. Volcano plot represent protein intensity difference (− log2 mean intensity difference) and significance in differences (− log P-value) based on a two-sided t-test. Proteins above the line are considered statistically significant (p value < 0.05) and those to the right and left of the vertical lines indicate relative fold changes > 2. Annotations are given for the most differentially abundant proteins identified. These plots are based upon post imputed data.

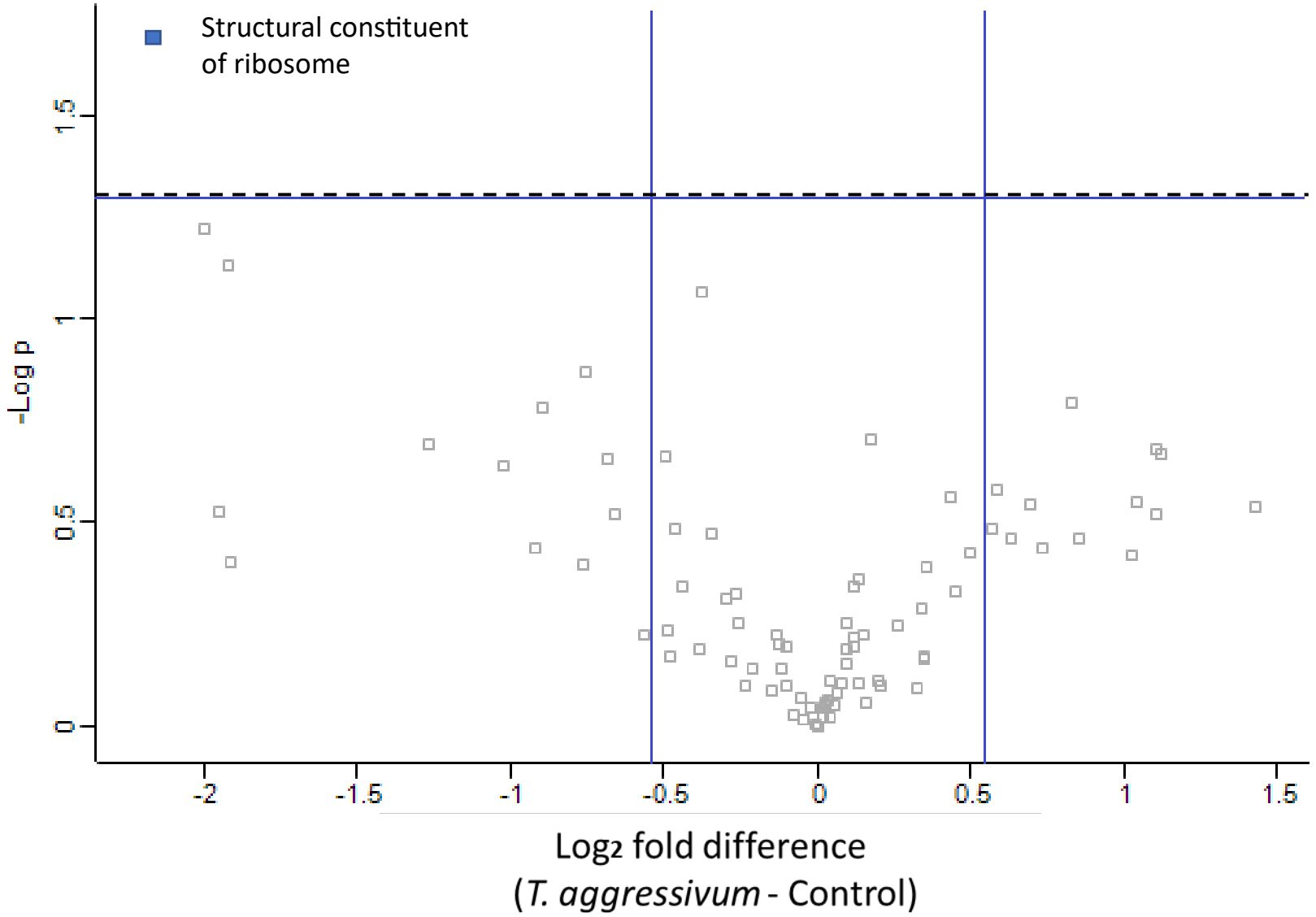


Figure S11b. Proteomic responses of *A. bisporus* following **8 day** incubation with 25% v/v 48h supernatant of *T. aggressivum*. Volcano plot represent protein intensity difference (– log2 mean intensity difference) and significance in differences (– log P-value) based on a two-sided t-test. Proteins above the line are considered statistically significant (p value < 0.05) and those to the right and left of the vertical lines indicate relative fold changes > 2. Annotations are given for the most differentially abundant proteins identified. These plots are based upon post imputed