

## Supplementary Materials

**Supplementary Table S1.** List of treatments during the pilot experiment.

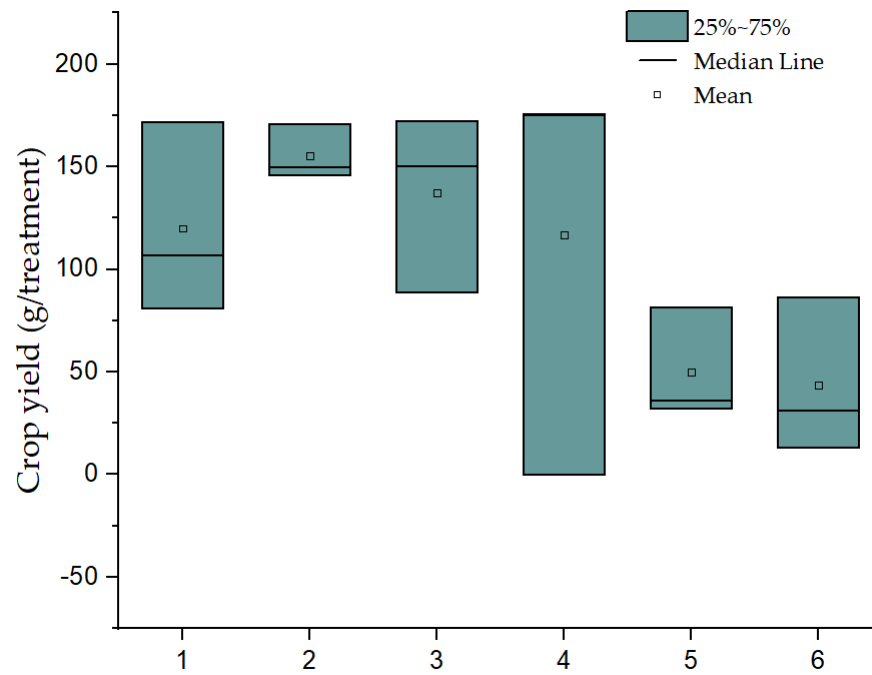
#	Treatments
1	Covering mushroom compost with untreated casing material
2	Covering mushroom compost with sterilized casing material
3	Inoculating mushroom compost with <i>T. aggressivum</i> conidia ( $10^6$ g <sup>-1</sup> of compost), covering with untreated casing material
4	Covering mushroom compost with untreated casing material, followed by inoculation with <i>T. aggressivum</i> conidia ( $10^6$ g <sup>-1</sup> of casing material)
5	Covering mushroom compost with sterilized casing material, followed by inoculation with <i>T. aggressivum</i> conidia ( $10^6$ g <sup>-1</sup> of casing material)
6	Inoculating mushroom compost with <i>T. aggressivum</i> conidia ( $10^6$ g <sup>-1</sup> of compost), covering with sterilized casing material, followed by inoculation with <i>T. aggressivum</i> conidia ( $10^6$ g <sup>-1</sup> of casing material)

**Supplementary Table S2.** Bacterial strains isolated and identified during the study.

SZMC Number	Strain	Locus Used for Identification	GenBank Accession Number	Similarity to Reference Strain (%)	GenBank Accession Number of Reference Strain
25287	<i>B. licheniformis</i>	16S	OM320465	98.02	NZ_CP034569.1
25290	<i>B. pumilus</i>	16S	OM320466	99.59	NZ_LT906438.1
25295	<i>B. simplex</i>	16S	OM320467	100	NZ_CP017704.1
25368	<i>Bacillus</i> sp.	-	-		
25370	<i>Bacillus</i> sp.	-	-		
25371	<i>Bacillus</i> sp.	-	-		
25372	<i>Bacillus</i> sp.	-	-		
25428	<i>Bacillus</i> sp.	-	-		
25429	<i>B. licheniformis</i>	16S	OM320468	97.86	NZ_CP034569.1
25430	<i>Bacillus</i> sp.	-	-		
25431	<i>B. velezensis</i>	16S	OM320469	100	CP087137.1
		<i>gyrA</i>	OM326895	100	CP081488.1
		<i>rpoB</i>	OM469331	99.72	CP081488.1
25434	<i>Bacillus</i> sp.	-	-		
25439	<i>Bacillus</i> sp.	-	-		
25441	<i>Bacillus</i> sp.	-	-		
25442	<i>B. velezensis</i>	16S	OM320470	100	JN700139.1
25443	<i>Bacillus</i> sp.	-	-		
25444	<i>Bacillus</i> sp.	-	-		
25446	<i>Bacillus</i> sp.	-	-		
25447	<i>Bacillus</i> sp.	-	-		
25449	<i>B. subtilis</i>	16S	OM320471	100	NC_000964.3
25450	<i>Bacillus</i> sp.	-	-		
25451	<i>B. licheniformis</i>	16S	OM320472	99.43	NZ_CP034569.1
25456	<i>Brevibacillus panacihumi</i>	16S	OM320473	100	EU383032.1
25459	<i>Brevibacillus panacihumi</i>	16S	OM320474	99.59	EU383032.1
25460	<i>B. licheniformis</i>	16S	OM320475	99.59	NZ_CP034569.1
25462	<i>B. licheniformis</i>	16S	OM320476	99.59	NZ_CP034569.1
25463	<i>B. licheniformis</i>	16S	OM320477	99.40	NZ_CP034569.1



**Supplementary Figure S1.** Application of the *Bacillus velezensis* suspension in the mushroom growing house using water tanks.



**Supplementary Figure S2.** Effect of artificial *Trichoderma aggressivum* infection on the crop yield of *Agaricus bisporus* grown in pots in a plant growth chamber. Standard deviations were calculated considering the first, second and third flush. 25% and 75% values are represented by boxes, mean values are represented by squares, median value as a line. Numbers 1-6 on the x axis indicate the treatments described in Supplementary Table S1.