

Supplementary materials

Evaluation of the effects of spores and their heat-treated residues from different *Bacillus* strains on the initial growth of rice plants

Ali Yawar Seerat¹, Taiichiro Ookawa², Katsuhiro Kojima³, Naoko Ohkama-Ohtsu², Masumi Maeda³, Salem Djedidi³, Safiullah Habibi⁴, Hitoshi Sekimoto⁵, Akira Abe⁶, Tadashi Yokoyama^{2*}

¹*United Graduate School of Agriculture, Tokyo University of Agriculture and Technology, 3-5-8 Saiwai-cho, Fuchu, Tokyo 183-8509, Japan;*

²*Institute of Agriculture, Tokyo University of Agriculture and Technology, 3-5-8 Saiwai-cho, Fuchu, Tokyo 183-8509, Japan*

³*Faculty of Agriculture, Tokyo University of Agriculture and Technology, 3-5-8 Saiwai-cho, Fuchu, Tokyo 183-8509, Japan*

⁴*Faculty of Agriculture, Kabul University, 3rd District, Kabul, Afghanistan,*

⁵*Faculty of Agriculture, Utsunomiya University, 7-1-2 Yoto, Utsunomiya 321-8585, Japan*

⁶*Iwate Biotechnology Research Center, Kitakami, Iwate, 024-0003, Japan*

Table S1. Number of bacterial cells on the surface and inside of the rice seed husk, on the root rhizoplane, and in the root endosphere at different time points after inoculations with different *Bacillus* strains

Treatments	Number of bacteria in seed before sowing {CFU/ seed F.W. (g)}				Number of bacteria in root at 7 DAS {CFU/ root F.W. (g)}			
	No. of bacterial cells on the seed husk	No. of spores on the seed husk	No. of bacterial cells inside the seed husk	No. of spores inside the seed husk	No. of bacterial cells on root rhizoplane	No. of spores on root rhizoplane	No. of bacterial cells in root endosphere	No. of spores in root endosphere
Control	0	0	0	0	0	0	0	0
TUAT1	4667957	2036120	378483	455882	59965	84724	91609	93601
JM52	1786599	1871396	288739	277703	328103	111566	405933	347515
118530	7264479	4879794	785586	1298777	154609	176116	338340	301630
301706	2214023	1216720	274953	255512	112824	77739	118881	72454
JR4	1723810	795238	247619	450000	30271	39725	55753	77358
JR198	661136	107927	73739	72314	9253	2639	21145	14531
301694	2162466	1189031	146415	111303	103492	133807	266628	290442
520023	1598060	1385809	1397401	1121303	25595	19076	29033	27180

Note: *Bacillus* strains: TUAT1, JM52, MAFF118530, and MAFF301706 (*Bacillus pumilus*); JR4 and JR198 (*B. altitudinis*); MAFF301694 and MAFF520023 (*B. megaterium*). MAFF: Ministry of Agriculture, Forestry, and Fisheries, Japan.

Rice variety: Hitomebore. DAS: Days after sowing. CFU: Colony-forming unit. F.W.: Fresh weight.

42 **Table S2.** Number of bacterial cells on the rhizoplane and in the root endosphere of rice plants at different time points after inoculations with
43 different *Bacillus* strains

Treatments	Number of bacteria in root at 15 DAS {CFU/ root F.W. (g)}				Number of bacteria in root at 25 DAS {CFU/ root F.W. (g)}			
	Number of bacterial cells on root rhizoplane	Number of spores on root rhizoplane	Number of bacterial cells in root endosphere	Number of spores in root endosphere	Number of bacterial cells on root rhizoplane	Number of spores on root rhizoplane	Number of bacterial cells in root endosphere	Number of spores in root endosphere
Control	0	0	0	0	0	0	0	0
TUAT1	119275	149616	90494	98934	157221	154061	82636	83451
JM52	327871	499259	446727	444392	338692	415281	177253	184040
118530	649111	620793	276708	291754	160947	179930	84856	71029
301706	161912	162567	197881	190223	24526	23261	8858	6771
JR4	137527	123812	73382	88662	383308	315537	199530	191366
JR198	15542	6463	8417	3878	197460	162477	94914	84929
301694	193736	133041	222826	183006	137278	119663	82126	78091
520023	47573	46314	18007	8270	10369	8430	4607	6546

Note: *Bacillus* strains: TUAT1, JM52, MAFF118530, and MAFF301706 (*Bacillus pumilus*); JR4 and JR198 (*B. altitudinis*); MAFF301694 and MAFF520023 (*B. megaterium*). MAFF: Ministry of Agriculture, Forestry, and Fisheries, Japan.

Rice variety: Hitomebore. DAS: Days after sowing. CFU: Colony-forming unit. F.W.: Fresh weight.

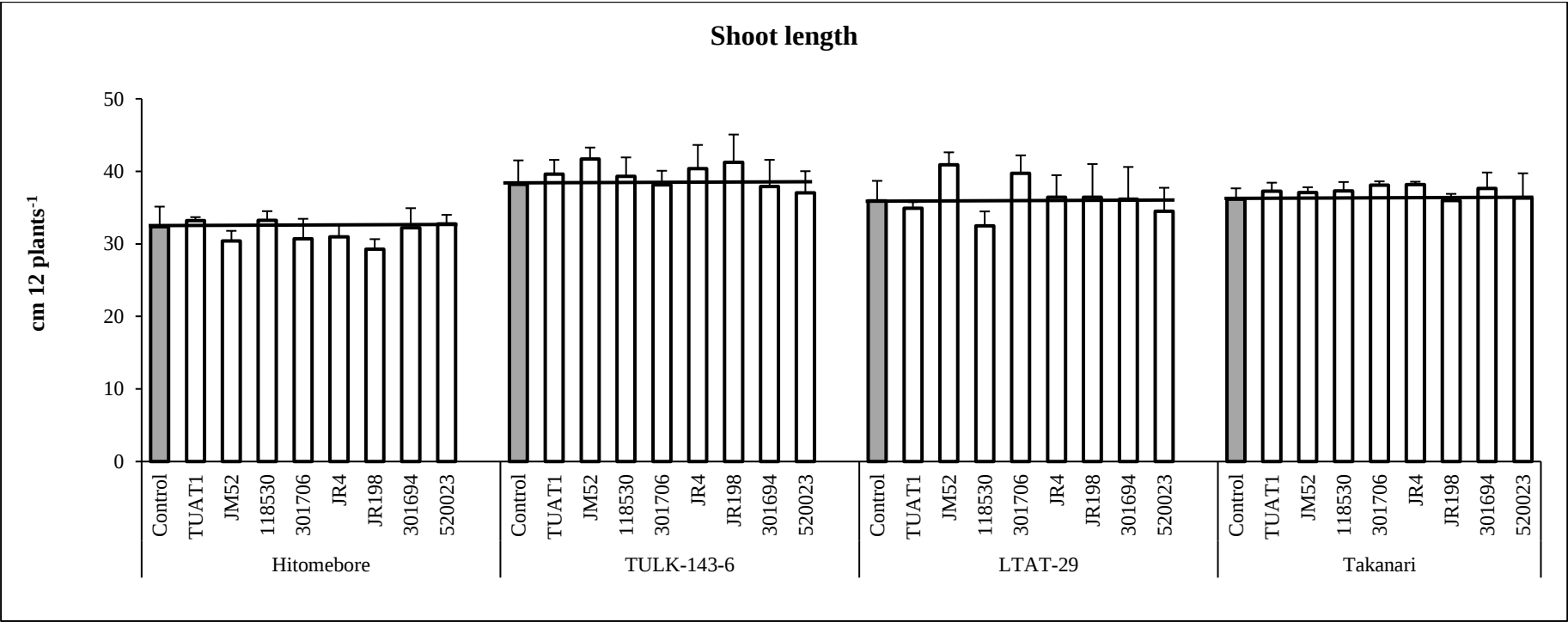
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48 Figure S1.



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50 **Fig. S1.** Shoot length of four rice varieties and lines following inoculations with *Bacillus* spores. The effects of *Bacillus* strains were not
51 significant according to Dunnett's test ($P < 0.05$). The error bar indicates the standard error of three replications.

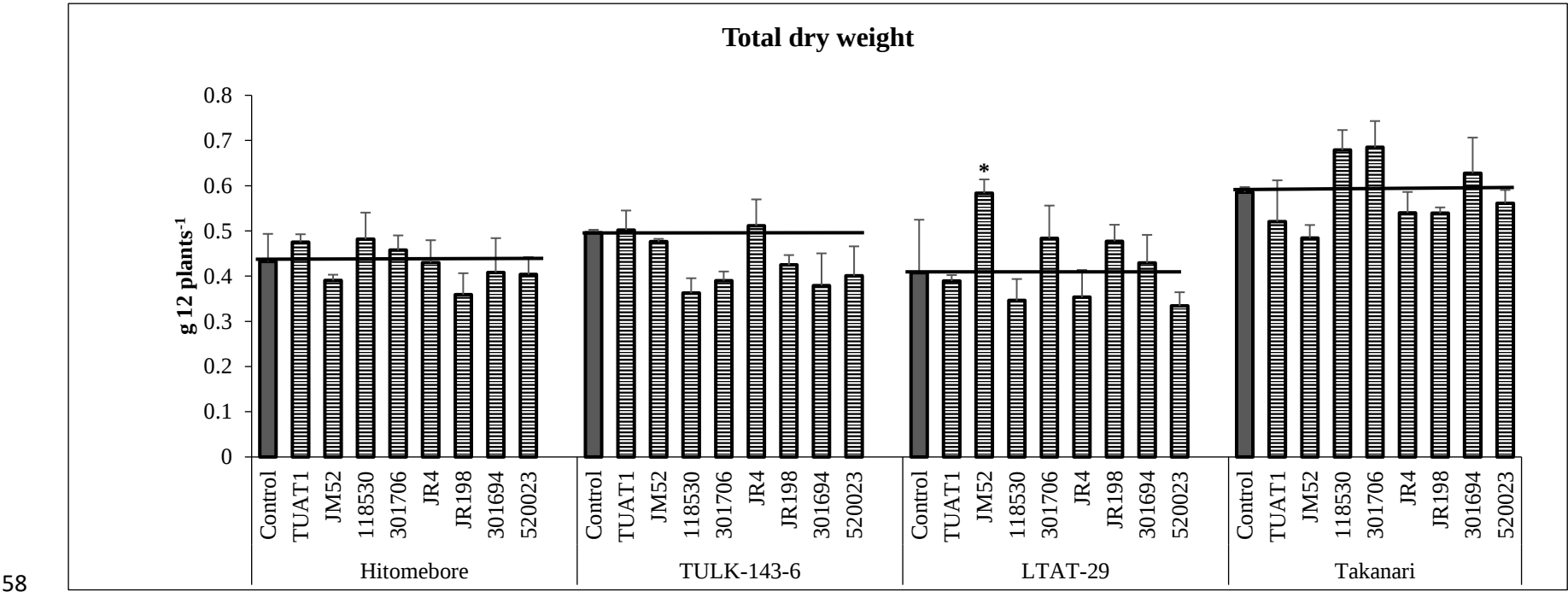
52 **Rice varieties and lines:** Hitomebore, TULK-143-6, LTAT-29, and Takanari

53 ***Bacillus* strains:** TUAT1, JM52, MAFF118530, and MAFF301706 (*Bacillus pumilus*); JR4 and JR198 (*B. altitudinis*); MAFF301694 and
54 MAFF520023 (*B. megaterium*). MAFF: Ministry of Agriculture, Forestry, and Fisheries, Japan.

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57 Figure S2



59 **Fig. S2.** Total dry weight of four rice varieties and lines following inoculations with *Bacillus* spores. Significant differences between treatments
60 and controls were determined with Dunnett's test ($P < 0.05$). The error bar indicates the standard error of three replications.

61 **Rice varieties and lines:** Hitomebore, TULK-143-6, LTAT-29, and Takanari

62 ***Bacillus* strains:** TUAT1, JM52, MAFF118530, and MAFF301706 (*Bacillus pumilus*); JR4 and JR198 (*B. altitudinis*); MAFF301694 and
63 MAFF520023 (*B. megaterium*). MAFF: Ministry of Agriculture, Forestry, and Fisheries, Japan.

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Figure S3

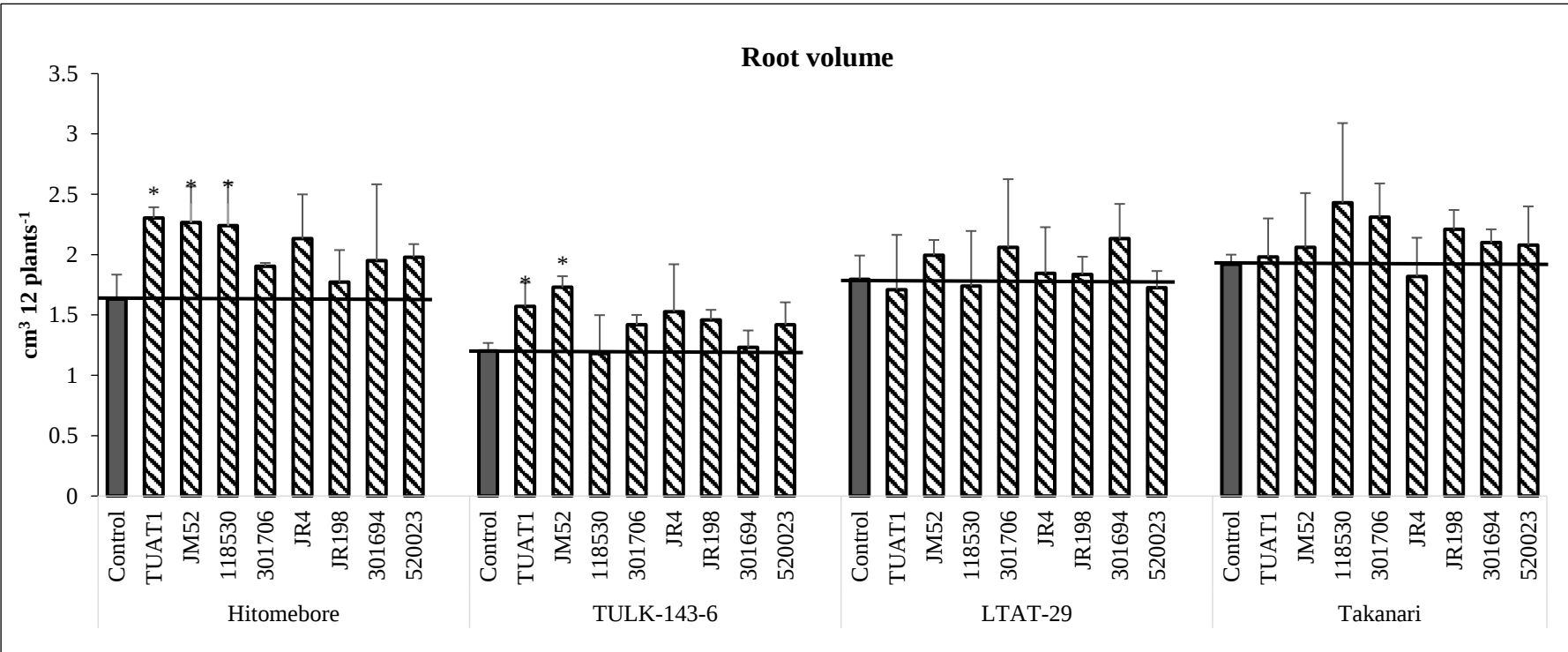


Fig. S3. Root volume of four rice varieties and lines following inoculations with *Bacillus* spores. Significant differences between treatments and controls were determined with Dunnett's test ($P < 0.05$). The error bar indicates the standard error of three replications.

Rice varieties and lines: Hitomebore, TULK-143-6, LTAT-29, and Takanari

***Bacillus* strains:** TUAT1, JM52, MAFF118530, and MAFF301706 (*Bacillus pumilus*); JR4 and JR198 (*B. altitudinis*); MAFF301694 and MAFF520023 (*B. megaterium*). MAFF: Ministry of Agriculture, Forestry, and Fisheries, Japan.

Figure S4

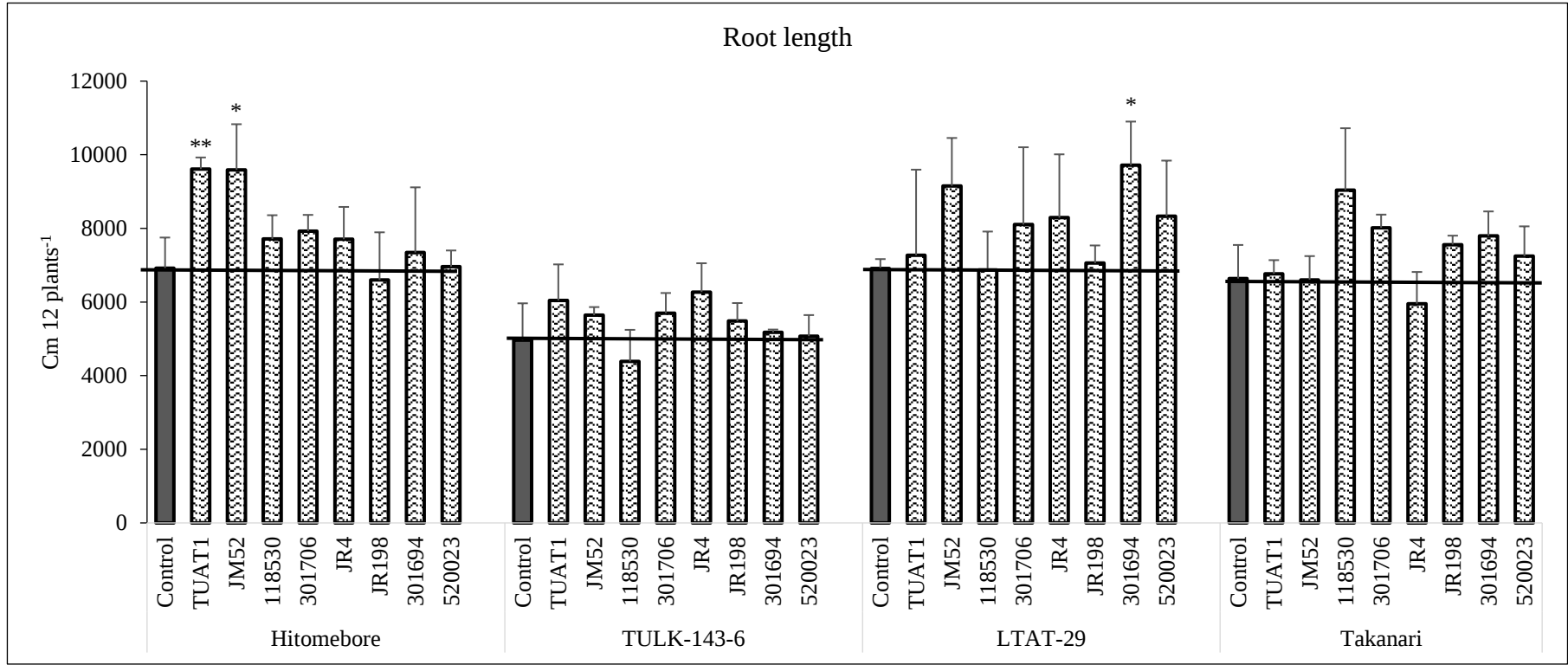


Fig. S4. Root length of four rice varieties and lines following inoculations with *Bacillus* spores. Significant differences between treatments and controls were determined with Dunnett's test ($P < 0.05$). The error bar indicates the standard error of three replications.

Rice varieties and lines: Hitomebore, TULK-143-6, LTAT-29, and Takanari

***Bacillus* strains:** TUAT1, JM52, MAFF118530, and MAFF301706 (*Bacillus pumilus*); JR4 and JR198 (*B. altitudinis*); MAFF301694 and MAFF520023 (*B. megaterium*). MAFF: Ministry of Agriculture, Forestry, and Fisheries, Japan.