

Sorghum and Hemp Responses to Plant Growth-Promoting Microorganism Inoculation in Metal-Contaminated Dredged Sediment: A System-Level Assessment Under Environmentally Relevant Outdoor Pot Conditions

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Table S1. Cultivar, source, and seed-lot quality parameters of *Sorghum bicolor* L. and *Cannabis sativa* L. used in the pot experiment.

Parameter	<i>Sorghum bicolor</i> L.	<i>Cannabis sativa</i> L.
Cultivar/variety	NS Džin	HELENA
Seed category	Pre-basic seed	C1
Production year	2024	2020
Producer	IFVCNS	IFVCNS
Processor	IFVCNS	IFVCNS
Purity (%)	99.8	99.9
Germination (%)	88	70
Germination energy (%)	87	63
Moisture content (%)	14.6	10.3
1000-seed weight (g)	11.19	10.71
Seed treatment	Not specified	Not treated
Health status	<i>Alternaria</i> sp. 4%	Correct/satisfactory
Note: IFVCNS—Institute of Field and Vegetable Crops, Novi Sad, Serbia		

Table S2. Daily meteorological parameters during the 10-week cultivation period [1].

Date	T _{avg} (°C)	T _{min} (°C)	T _{max} (°C)	Prcp (mm)	W _{spd} (km/h)	W _{pgt} (km/h)	Pres hPa	t _{sun} (min)
2024-04-25	9.5	3.4	15.6	0.8	5.7	16.7	1009.7	353
2024-04-26	12.1	3.2	19.2	0	7.8	22.2	1013.3	505
2024-04-27	15.9	7.6	22.5	0	6.9	18.5	1017.2	575
2024-04-28	19.1	9.1	27	0	14.7	33.3	1020.4	660
2024-04-29	19.2	10	27.1	0	17.8	47	1022.8	662
2024-04-30	18.5	10.7	23.9	0	25.4	61	1023.3	614
2024-05-01	18.4	13.4	24.1	0	30.3	65	1016.1	504
2024-05-02	19.2	14.8	25.8	0	18.4	43	1010.3	276
2024-05-03	14.2	11.7	16.6	7.1	9.6	43	1008.9	0
2024-05-04	14.9	11.4	21.8	11.9	10.4	22.2	1012.7	391
2024-05-05	19.8	11.5	26.6	0	5.4	16.7	1014.3	639
2024-05-06	20.6	11.3	26.4	0.5	8.5	25.9	1012.4	571
2024-05-07	19.8	14.1	27.8	0	9.3	27.8	1012.8	379
2024-05-08	18.2	13.6	23.9	0.3	9	27.8	1016	231
2024-05-09	17.1	11.5	23	0	10.1	27.8	1019.3	382
2024-05-10	16.8	11.6	22	0	12.8	29.6	1019.9	455
2024-05-11	17.6	9.3	25.7	0	8.1	24.1	1018.8	533
2024-05-12	16.9	13	23.8	0	8	40	1018.2	278
2024-05-13	16.2	6.8	23.4	8.4	6.7	20.4	1018	679
2024-05-14	15.9	7.9	22.2	0	8.8	18.5	1014.3	418
2024-05-15	15.6	9.4	21.5	0	18.9	47	1015.7	572
2024-05-16	16.7	11.7	22.6	0	29.3	61	1014.1	378
2024-05-17	18.7	13.5	24.9	1	28	68	1011.1	350
2024-05-18	20.4	10.7	27.3	1.8	7.3	29.6	1014.2	578
2024-05-19	22.5	14.4	29.9	0	10.8	22.2	1011.5	439
2024-05-20	22.1	17.1	27.4	0	13	27.8	1012	389
2024-05-21	20.8	17.2	28	0	21.3	54	1009.7	359
2024-05-22	19.6	14.5	26.3	18.8	8.3	31.5	1010.8	408
2024-05-23	16.6	14.8	22.8	3.6	8.6	40	1015.1	188
2024-05-24	18.4	15.8	23.5	18	7.4	20.4	1018.6	295
2024-05-25	20	12.1	26.9	4.1	13.5	40	1017.3	603
2024-05-26	21.1	13.8	26.7	0	13.6	33.3	1017.6	507
2024-05-27	20	12.9	27.9	0	7.1	47	1018.7	648
2024-05-28	20.5	13	26.5	0	8.6	20.4	1014.7	636
2024-05-29	20.1	15.1	26.4	0.8	13.8	40	1012.8	505
2024-05-30	21.1	13.8	28.2	1.3	7.6	18.5	1007.9	525

Date	T _{avg} (°C)	T _{min} (°C)	T _{max} (°C)	Prcp (mm)	W _{spd} (km/h)	W _{pgt} (km/h)	Pres hPa	t _{sun} (min)
2024-05-31	21.6	14.8	25.2	0.5	13.9	40	1007.2	341
2024-06-01	23.6	15.7	30.6	0	10.2	29.6	1010.8	578
2024-06-02	23.1	14.3	30	0	5.9	18.5	1015.3	668
2024-06-03	19.6	16.2	25	5.8	8.5	61	1013.4	262
2024-06-04	18.2	12.7	24.2	15.2	12	43	1013.2	394
2024-06-05	20.8	13.9	26.6	0	5	16.7	1015.1	445
2024-06-06	23.2	14.3	30	0.8	5.2	13	1017	712
2024-06-07	26	16.4	33.2	0	6.2	16.7	1015.8	656
2024-06-08	25.3	18.3	32.4	0	6.3	16.7	1013.5	628
2024-06-09	26.5	21.5	31.6	0	10.8	29.6	1008.8	568
2024-06-10	26.1	20.9	34	0	10.3	24.1	1005.2	382
2024-06-11	21.1	19	25	14.2	8.5	24.1	1009.9	302
2024-06-12	19.3	17	23	1.8	10.2	25.9	1013.4	135
2024-06-13	17.8	14.4	22.1	1.5	8.4	47	1015.8	146
2024-06-14	18.3	12.3	24.6	9.9	10.5	25.9	1016.2	600
2024-06-15	20.4	12.3	28.2	0	5.7	16.7	1013.4	736
2024-06-16	23.9	15.9	30.2	0	7.4	20.4	1011.4	566
2024-06-17	24.3	19.2	30.4	4.3	5.9	14.8	1015.2	617
2024-06-18	25.9	18.5	33	0	14.7	16.7	1017.2	713
2024-06-19	27.4	19.1	36.4	0	7.2	18.5	1015.5	738
2024-06-20	28.2	21.3	34.4	0	6.5	18.5	1017.4	683
2024-06-21	29.3	21	36.6	0	7.2	20.4	1015.9	699
2024-06-22	28.7	22.5	37.4	0	10.8	43	1009	537
2024-06-23	25	19.6	31.1	1.3	11.2	29.6	1009.9	317
2024-06-24	25.8	19.2	32.7	0	12.7	27.8	1013	519
2024-06-25	26.5	19.1	32.5	0	7.4	22.2	1014.2	426
2024-06-26	24.1	19.6	29.9	0	16.2	47	1012.7	387
2024-06-27	21.7	16.3	27	1	8.1	22.2	1011.1	218
2024-06-28	24.6	17.3	30.7	1.8	5.9	14.8	1014.4	456
2024-06-29	27.6	19.1	34.2	0	6.6	14.8	1017	685
2024-06-30	28.5	21.4	35.8	0	11.9	29.6	1012.1	689
2024-07-01	27.3	21.6	33.3	0	11.5	43	1009.4	619
2024-07-02	20.1	17.6	22.5	26.2	12.2	54	1007.9	20
2024-07-03	19.5	12.7	25.3	1	8.2	24.1	1008	505

Note: Date format: YYYY-MM-DD; T_{avg}—average air temperature (°C); T_{min}—minimum air temperature (°C); T_{max}—maximum air temperature (°C); Prcp—precipitation/rainfall (mm); W_{spd}—average wind speed (km/h); W_{pgt}—peak wind gust (km/h); Pres—average air pressure (hPa); T_{sun}—sunshine duration (min).

Table S3. Element-specific AAS conditions and validated method-performance parameters for heavy metal determination.

Element	AAS mode	Wavelength (nm)	Calib. range	MDL (mg/kg)	PQL (mg/kg)	Linear range	Accuracy (%)	Precision (RSD, %)
Cr	FAAS	357.9	0.05–1.5	1.11	2.25	≤ 2.50	99.6	4.37
	GFAAS		2.5–25	0.022	0.045	≤ 25.25	99.56	3.00
Ni	FAAS	232.0	0.25–2.0	9.3	19	≤ 2.00	101.0	7.86
	GFAAS		10–100	0.053	0.107	≤ 101	98.17	4.00
Cu	FAAS	324.8	0.1–2.5	1.06	2.15	≤ 2.50	106.5	7.37
	GFAAS		2.5–50	0.022	0.045	≤ 50	99.44	3.01
Zn	FAAS	213.9	0.05–1.5	0.57	1.2	≤ 1.50	86.3	6.54
	GFAAS		/	/	/	/	/	/
As	FAAS	193.7	/	/	/	/	/	/
	GFAAS		5–100	0.064	0.130	≤ 99	98.52	5.54
Cd	FAAS	228.8	0.05–1.5	0.71	1.45	≤ 1.00	98.2	6.87
	GFAAS		0.5–10	0.0076	0.015	≤ 10	99.12	2.55
Pb	FAAS	217.0	0.6–10	12.5	25	≤ 10.00	103.9	9.68
	GFAAS		10–100	0.146	0.3	≤ 100	98.03	4.03

Note: FAAS–flame atomic absorption spectrometry; GFAAS–graphite furnace atomic absorption spectrometry; Calib. range–calibration range; MDL–method detection limit; PQL–practical quantification limit; RSD–relative standard deviation. FAAS and GFAAS measurements followed EPA 7000B and EPA 7010, respectively. Calibration and linear ranges are expressed in mg/L for FAAS and in µg/L for GFAAS. Method-performance parameters refer to the validated sediment/soil/sludge analytical method.

References

1. Meteostat Historical Weather and Climate Data Available online: <https://meteostat.net/> (accessed on 18 May 2026).